REPORT RESUMES

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REORGANIZED SCIENCE CURRICULUM, 1, GRADE ONE SUPPLEMENT.
MINNEAPOLIS SPECIAL SCHOOL DISTRICT NO. 1, MINN.

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THE SECOND IN A SERIES OF17 VOLUMES, THIS VOLUME PROVIDES THE FIRST GRADE TEACHER WITH A GUIDE TO THE REORGANIZED SCIENCE CURRICULUM OF THE MINNEAPOLIS PUBLIC SCHOOLS. THE MATERIALS ARE INTENDED TO BE AUGMENTED AND REVISED AS THE NEED ARISES. A CHART INDICATES CONCEPT TO BE TAUGHT IN GRADES K-3 FOR EACH OF THE FOUR AREAS AROUND WHICH THE PROGRAM IS DESIGNED. THE AREAS ARE (1) THE EARTH, (2) LIVING THINGS, (3) ENERGY, AND (4) THE UNIVERSE. AT PRESENT THE RESOURCE UNITS SECTION OF THE SUPPLEMENT CONTAINS A UNIT ON ENERGY. OTHERS WILL BE ADDED AS THEY BECOME AVAILABLE. COURSE CONTENT FOR K-12 IS GIVEN IN CHART FORM. IN ADDITION TO THE INTRODUCTORY MATERIAL, SECTIONS OF THE SUPPLEMENT ARE (1) CONCEPTS, (2) RESOURCE UNITS, (3) ANNOTATED BIBLIOGRAPHY, BOOKS, (4) ANNOTATED BIBLIOGRAPHY, FILMS, AND (5) EQUIPMENT AND SUPPLIES. (DH)

ED019242

SCIENTIFIC APPROACH TO PROBLEM SOLVING

1. Observation--first-hand experiences and observation.

2. Definition of PROBLEM--ask questions, choose one for investigation.

3. Results of other investigators--read about problem, discuss it with interested friends and resource people, examine the written material.

4. Possible solutions--list all possible guesses.

5. Choosing the best solution (HYPOTHESIS)--pick the "best guess".

6. Testing the hypothesis--planning and carrying out EXPERIMENTS to determine its truth.

7. CONCLUSION of accepting or rejecting hypothesis--draw conclusion from experiments to determine acceptance or rejection of "best guess".

8. More extensive testing of hypothesis--experiment further to determine if hypothesis always holds true.

9. Stating the THEORY and publishing results--restate the hypothesis in light of the above experimentation, publish in professional journal.

10. Finding mathematical proof--do any measuring and mathematical calculations to develop proof of theory.

11. Statement of LAW or PRINCIPLE--if no one can find a mistake in the mathematical proof or develop a contrary proof, the theory becomes a law or principle.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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THE GRADE ONE SUPPLEMENT

to the

REORGANIZED SCIENCE CURRICULUM

Kindergarten Through Grade Twelve

(For Discussion Purposes Only)

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MINNEAPOLIS PUBLIC SCHOOLS
special school district no. 1
Minneapolis, Minnesota

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October 1, 1962

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FOREWORD

Long before that famous October fourth, 1957, when Sputnik I rocketed into orbit, the science teachers of the Minneapolis Public Schools eagerly began work on the reorganization of the science curriculum from kindergarten through grade twelve. This reorganized science curriculum was requested by our instructional staff and developed by representative members of that staff.

The citizen of today must be science literate in order to exercise adequately his duties of citizenship. The contribution of the scientist to our way of life is the methods which he uses to attack a problem and seek its solution. These methods are unique, but more important, they are very useful; they can be applied in the solution of the everyday problem by knowledgeable children at all ages and grade levels, and by adults in all walks of life. If these methods of science are to be learned by the youth of Minneapolis, they must be learned by attacking realistic problems inside and outside the classroom. This practice in the solving of work-a-day problems trains our young citizens to think for themselves in seeking new solutions to age-old problems of our civilization.

In the Minneapolis Public Schools we recognize that science is a very important part of the liberal arts general education which should be studied by all students. We are aware of our responsibility for instruction which must be well grounded in the fundamental laws and principles in all the fields of the basic sciences and therefore propose this reorganized curriculum for teaching the ever-expanding knowledge of science.

This reorganized science curriculum does not teach itself. It is a planned developmental approach in which the teacher is the expeditor and not the limiter of learning. The curriculum has been developed to aid the student in acquiring new breadths and new depths of understanding of his environment; and with it a teacher who is well trained in science may lead the student in an ever-expanding investigation of his surroundings in this world and universe. If the curriculum is used cooperatively by teacher and students, it is an instrument which can mold a pupil of the Minneapolis Public Schools into a science-literate citizen who, if he continues advanced science training, may become a scientist of the future.

Rufus A. Putnam
Superintendent of Schools

INTRODUCTION

This Supplement has been prepared as a convenient reference to assist the first grade teacher in teaching the science content allocated in the Reorganized Science Curriculum. First grade teachers suggested and assisted with the preparation of each section of this Supplement. Those who have participated in the preparation of this teacher's guide lay no claim to its being "without blemish". However, its value can be determined only by those classroom teachers who use it and make constructive suggestions to improve it. All Minneapolis Public School personnel are invited to cooperate in improving this Supplement in order to make it of genuine assistance to all beginning and experienced first grade teachers. All constructive suggestions should be called in or sent to the Science Department Office.

This Supplement is not complete at the present time. When additional materials are developed, a copy will be furnished to you to place in this loose-leaf binder. Your cooperation with us to keep your Supplement up-to-date will be appreciated. When you leave your school, please leave the Supplement for the next teacher's use.

CONTINUITY OF SUBJECT MATTER, KINDERGARTEN THROUGH GRADE THREE

Introduction to Science

Kindergarten	Grade One	Grade Two	Grade Three
Science and how we learn about it	Some ways of learning science	Using science	Methods of science
			Tools for measurement of time and direction

I. The Earth

Finding out about our earth	Rocks and soil		Features of the earth's crust
			How soils are made
Seeing differences in materials			
Water		Water appears and disappears	Water is everywhere
Air around us	Air around us		Air is everywhere
			What makes the weather?

II. Living Things

Things that are alive			Things alive
			Protecting and enjoying plants and wildlife
Plants around us	Learning about plants	How plants live and grow	How plants depend on their environment
	Kinds of seeds and how they travel		
How animals are different 1. Body covering 2. Movement 3. Habitat 4. Usefulness	Animals need food	Animal behavior	How animals help us
Enjoying animals	Animals use their senses	Animals have young	Animals live in communities
What our bodies need	Our bodies	Understanding ourselves	Our bodies at work

CONTINUITY OF SUBJECT MATTER, KINDERGARTEN THROUGH GRADE THREE

III. Energy

Kindergarten	Grade One	Grade Two	Grade Three
			Liquids and solids
Simple machines		Things that help and hinder work	Mechanical energy
			Earth's gravity
Magnets are fun		Magnets and what they do	
	What we can learn from sound	How sounds travel	
	Electricity works for us		Effects of current electricity
Keeping warm			Sources and uses of heat
How light helps us	Light and shadows	Light and how it is reflected	

IV. The Universe

We look at the sky	Our star, the sun	What we see in the sky	The sun and other stars
	The earth where we live	Movements of the earth	

Minneapolis Public Schools
Science Department
Rev. 9-5-62

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MINNEAPOLIS PUBLIC SCHOOLS
Science Department

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SUMMARY OF GRADE-CONTENT ASSIGNMENTS

Area and Major Topics	Grade Level												
	K	1	2	3	4	5	6	7	8	9	10	11	12
Introduction to Science (Gray)	*	*	*	+	*	*	*	+	+	+	+	+	+
A. Attitudes (including history)	+	+	+	+	+	+	+	+		+			+
B. Tools	+		+	+	+		+		*				+
C. Methods	+		+	*	+	+	+			*			
I. The Earth (Red)	+		+	*	*	+		+	*				
A. History of the earth					+				+				
B. Physical features	*	+		+	+				+				
C. Rocks and minerals	+	*			+				+				
D. Soils		+		+	+				+				
E. Water	*		*	+	*			*					
F. Air	+	*		+	*			*					
G. Weather and climate				+		*			*				

Key to symbols -- * major emphasis
+ content to be taught

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Area and Major Topics	K	1	2	3	4	5	6	7	8	9	10	11	12
II. Living Things (Green)	+	+	+	+	+	+		*			*		
A. Life and life processes	+	+	+	+		*		+			+		
1. Life in general	+			*		+		+			+		
2. Food taking or nutrition		*	*	+		+					+		
3. Digestion								+			+		
4. Absorption						+		+			+		
5. Circulation				+		+		+			+		
6. Respiration						+		+			+		
7. Assimilation								+			+		
8. Oxidation						+		+					
9. Excretion				+		+		+			+		
10. Reproduction and growth		*	*	*		+		+			+		
11. Responsiveness	+	*	+	+		+		+			+		
B. Classification	*	+	+	+		*		+			+		
C. Ecology	*	+	*	*	*			+			+		
D. Plant and Animal economics	+	+	+	*	*			+			+		
E. Human body	*	*	*	*		*		*			+		
F. Aesthetic values	*			*				+			+		

(continued)

Grade-content assignments (continued)

Area and Major Topics	Grade Level												
	K	1	2	3	4	5	6	7	8	9	10	11	12
III. Energy (Yellow)	+	+	+	+	+	+	+			+		*	+
A. Properties of matter related to energy	+			*			*			*		+	*
B. Sources and conservation of energy	+			+		*				+		+	+
C. Mechanical energy and simple machines	*		*	*			*			*		+	
D. Gravitational energy	+			+			+			+		+	
E. Magnetic energy	*		*	+	*					+		+	
F. Sound		*	*				*			+		+	
G. Electrical energy		*		*		*				*		*	
1. Static						+				+		+	
2. Current		*		*		+				*		+	
H. Communication bands and electronics												+	
I. Heat and Infrared radiation	*			*		*				+		+	
J. Light and Ultraviolet radiation	*	*	*				*			+		+	
K. High energy waves												+	
L. Chemical energy				+			*			*			*
M. Atomic energy							+			+		+	*

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Area and Major Topics	Grade Level												
	K	1	2	3	4	5	6	7	8	9	10	11	12
IV. The Universe (Blue)	+	+	+	+		*	+		*	+			
A. Earth	+	*	*	*		+							
B. Moon	*		*			+			+				
C. Sun	*	*	*	*		+			+				
D. Solar system						+			+				
E. Stars and galaxies	*		*	*		+			+				
F. Space Travel		+	+	+			*			*			

Key to symbols -- * major emphasis
+ content to be taught

Note: Conservation and safety must permeate science teaching at all grade levels.

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CONCEPTS

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Grade One

ALLOCATION OF CONCEPTS BY UNIT TITLES

Note: This report presents a list of unit titles, within which the order of the concepts found in the Handbook has been changed to provide a logical teaching approach.

Introduction to Science

Some ways of learning science

1. Science discoveries may be made almost anywhere.
2. We learn about things around us by using our senses of sight, hearing, touch, taste, and smell.
3. Touching, hearing, seeing, tasting, and smelling are ways of learning.
4. Temperature is measured with a thermometer.
5. Warm things have a higher temperature than cold things.

I. The Earth

A. Air around us

1. All living things need to use materials from the air to sustain life.
2. All living things supply carbon dioxide to the air.
3. The air resists motion.
4. Air in motion is wind.
5. The wind usually feels cool to us.

B. Rocks and soil

1. There is some soil nearly everywhere.
2. Land is made of soil and rock.
3. Some rocks are harder than other rocks.
4. Some rocks break more easily than others.
5. Recently broken rocks usually are rough.
6. The hardest part of the earth is rock.
7. Some rocks are soft and can be scratched by harder materials.
8. Rounded, smooth rocks have been rolled and rubbed against many other rocks.
9. Rocks in the bottom of a stream are usually rounded and smooth.
10. Rocks may contain small flat shiny pieces of material.
11. Some rocks appear to be made of many smaller pieces of rock.
12. Some rocks appear to be made of small grains of sand.
13. Some soil may be carried by the wind.
14. The land masses have mountains and plains.

II. Living Things

A. Animals need food

1. All plants and animals need food.
2. Animals eat different kinds of food.
3. Some leaves are used as food by animals.
4. Some caterpillars eat leaves.
5. Many domestic animals use plants for food.
6. Some animals eat insects and other small animals.
7. Animals secure their food in different ways.
8. Some animals find their food in water.
9. An earthworm gets its food from the earth.
10. Animals should not be overfed or underfed.
11. Animals need food air, water, vitamins and minerals to live.
12. All things that are alive need water.
13. All living things need water.
14. Food for animals should be provided regularly.
15. Some animals prepare for winter in different ways (storing food and growing heavier coat).

B. Animals use their senses

1. Some animals have eyes which enable them to see.
2. Many animals are sensitive to sound.
3. Some living things react to touch.
4. Some animals have a sense of taste.
5. Many animals are able to detect odors.

C. Our bodies

1. Our bodies give off heat.

2. Some kinds of clothes hold in our body heat better than others.

3. Extremely cold or warm weather requires different types of clothing for body protection.

4. Sleep is the best way of resting.

5. Disease germs can be transmitted from one individual to another in different ways.

6. Disease germs may enter the human body through the nose and mouth.

7. Skin helps prevent disease germs from entering the body.

8. Disease germs enter the body through breaks in the skin.

9. Many disease germs may be removed from a wound by washing.

10. Clean hands and clean clothes have few disease germs on them.

11. Antiseptics help reduce the number of disease germs in a wound.

12. There are temporary and permanent teeth.

D. Learning about plants

1. Plants live in many kinds of environments.
2. Some plants live for many years (perennials).
3. Plants take water from the soil.
4. Every part of a plant has a purpose.
5. Some new plants can be grown from portions of the roots, stems or leaves of other plants.
6. The length of the growing period of plants varies.
7. Sunshine, air and water are needed for a plant to make food.
8. As some young plants grow, roots, stems and leaves develop.
9. Roots grow down.
10. Stems grow upward.
11. Most plants turn their leaves toward the sun.
12. Different plants have different kinds of leaves.
13. Leaves differ in many ways.
14. Some trees lose their leaves periodically.
15. During winter most plants do not grow.
16. Plants and animals are dependent upon each other.

E. Kinds of seeds, and how they travel

1. Many plants grow from seeds.
2. There are many kinds of seeds.
3. Different kinds of seeds produce different kinds of plants.
4. Most trees grow from seeds.
5. In a seed there is a young plant.
6. Most seeds have coverings for protection.
7. Seeds are distributed in various ways.
8. Seeds are usually distributed by wind, water and animals.

III. Energy

A. Electricity works for us.

1. Electricity does work for us.
2. Electricity may make things move.
3. Electricity goes through wires.
4. Electricity can be dangerous.

B. What we can learn from sounds.

1. There are many different sounds around us.
2. Some sounds are louder than others.
3. Loud sounds travel a long way.
4. Sounds far away do not sound as loud as those close by.
5. Some sounds are able to communicate ideas.
6. Sounds come from many different sources.
7. Many animals may be identified by the sounds they make or do not make.
8. Many birds make musical sounds.

C. Light and shadows

1. Opaque objects form shadows in sunlight.
2. A shadow is formed when an object cuts off direct light.
3. The shadow of an object is often called shade.
4. The outline of a shadow is similar to the outline of the object.
5. Shadows are usually changed by a change in the position of the sun in the sky.
6. The lower the sun is in the sky, the longer are the shadows which are produced.
7. A shadow has dimensions.

IV. The Universe

A. The earth where we live

1. The earth is not as big as the sun.
2. The earth is turning around all the time.
3. The earth turns around so slowly and so smoothly that we do not feel it.

B. Our star, the sun

1. The sun is very far away.
2. The sun is shining all of the time.
3. The sun is the source of most of our light.
4. The sun gives us heat.
5. The sun very often appears to change size and color during the morning and evening as compared to its appearance during the day.
6. The sun is lower in the sky during the winter.
7. The sun "rises" in the morning and "sets" in the evening.

RESOURCE UNITS

A RESOURCE UNIT

III. ENERGY --

B. WHAT WE CAN LEARN FROM SOUND

TO BE TAUGHT IN

GRADE ONE

To be included in the Grade One Supplement of the
Reorganized Science Curriculum

Minneapolis Public Schools
Science Department

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INTRODUCTION

Our world is full of sounds--necessary and unnecessary, cheerful and mournful, pleasant and unpleasant. It can be fun as well as useful to know and recognize many different sounds.

This resource unit offers some suggestions for materials and activities to help the teacher in planning a teaching unit to make children aware of sounds. It emphasizes the differences in sources and methods of producing sound and some of the value of sounds in conveying ideas. The unit carefully avoids inclusion of science concepts relating to vibrations and to the transmission of sound which is to be taught in Grade Two, or above.

Using this resource unit a teacher may select the activities which will be meaningful to her own group of pupils, and she may be stimulated to develop further experiences in sound. Since some of the activities in this resource unit cannot be experienced in a class situation, the children should be encouraged to have these experiences with their families.

The purpose of this unit is to provide the children experiences with sounds in order that they may develop an understanding of the importance of sounds in providing information about the world around them; an ability to recognize and identify sounds produced by animals; an awareness of the sounds made by people at their daily work; and an alertness to the sounds which warn of danger.

The outcomes from this unit will be varied. In addition to an understanding of science concepts, the children should establish a new attitude toward listening and an increased enjoyment of sounds. They should be more able to learn by listening, to apply their science learnings in different situations, and to investigate, observe and discover sound information for themselves. If the unit is truly successful, the teacher should observe a modification of the children's behavior in learning from sounds and a reduction in the quantity of unnecessary sounds produced by children.

I. CONCEPTS INCLUDED IN THIS UNIT

1. There are many different sounds around us.
2. Some sounds are louder than others.
3. Loud sounds travel a long way.
4. Sounds far away do not sound as loud as those close by.
5. Some sounds are able to communicate ideas.
6. Sounds come from many different sources.
7. Many animals may be identified by the sounds they make or do not make.
8. Many birds make musical sounds.

II. LEARNING ACTIVITIES

Concept #1 - There are many different kinds of sounds around us

Suggested Activities	Some Suggestions
1. Make different sounds in the classroom. Listen to them and note the differences in the sounds produced.	Ways to make sounds: sing hum talk cough sneeze breathe deeply close a door snap on a light strike a bell turn on a faucet open a window walk in leather soled shoes tap your foot stamp your foot clap your hands rap on wood sit on a squeaky chair walk in gym shoes move a squeaky door rustle cellophane crush stiff paper wind a clock spin a top strike a pail

- -

Suggested Activities	Some Suggestions
2. Walk out on the playground. Listen to the different sounds.	Sources of the sounds often heard: children shouting children hopping children skipping children walking children running children's feet scraping against gravel children talking loudly birds singing jump ropes hitting on the ground baseball bats striking against balls balls bouncing
3. Stand still on playground. Close your eyes. Try to identify the sources of the sounds you hear.	Sources of the sounds to identify: car horn honking train whistling wind blowing people walking dog barking airplane engine humming children running child crying air raid siren shrilling fire drill bell ringing
4. Listen to and identify the sounds in the street.	Sounds along the street: walking people running children talking people growling dog putting car exhaust rumbling buses throbbing air pump honking car horn rumbling trucks ringing traffic bells screeching car brakes swishing street sweeper scraping snow plow sounding policeman's whistle rattling play wagon grinding roller skates

Suggested Activities	Some Suggestions
5. Listen to and identify sounds at home.	Things which make sounds: water faucet egg beater washing machine disposal saw door bell broom telephone vacuum cleaner refrigerator motor dishes, pots and pans hammer and nail flour sifter furnace air conditioner electric fan
6. Listen to and identify the sounds which are characteristic of some weather conditions.	Kinds of weather and their sounds: rain storm - rain splashing in a puddle, rain tapping on the window hail storm - hail tapping on the window windy day - leaves rustling in the wind, flag flapping in the breeze cold, wintery day - snow crunching under foot

Suggested Activities	Some Suggestions
7. a. Visit a farm. Listen to the sounds on the farm.	Things which make sounds: tractor hay lift binder reaper milking machine combine farm animals farmer grinding feed windmill pump electric pump corn picker gate to barnyard threshing machine silage machine farmer grinding tools
b. Listen to the record, "Around the Farm", from the album, Sounds Around Us. Duplicate sounds heard on the recording by experimenting with voice, materials and objects.	Sounds to listen for: squeaking porch steps striking of horses hoofs on the ground farmer chopping wood farmer milking a cow
8. Think of the sounds you have heard in special places. Make separate lists of sounds you can hear in each different place.	Places with characteristic sounds: home school circus farm city prairie country forest zoo park playground street

Suggested Activities	Some Suggestions
9. Pour water slowly into a pitcher. Listen to the sound. Note whether the sound changes.	Similar experiences: pouring sand into a pail pouring gravel into a coffee can

Concept #2 - Some sounds are louder than others

Suggested Activities	Some Suggestions
1. Predict what sounds you think will be loud or soft before you listen for them.	
a. Drop many different objects onto the floor from the same height. Decide whether you can predict by looking at the thing whether it will make a loud or soft sound. Note that some sounds are louder because the object is heavier. Drop small and large objects of the same kind. Repeat, varying the distances to discover if the distance things drop changes the loudness of the sounds produced.	Objects to drop to make sound: pencil wood block ruler leaf book crayon handkerchief magazine shoe scissors
b. Use a pencil to tap on different objects, being sure to use the same amount of effort each time. Use materials of the same sizes. Note that some sounds are louder because the source is a different material.	Materials to tap: cloth wood paper metal plaster glass
c. Tap similar objects of different size with a pencil, using the same force for each tap. Answer the questions: (1) Will the size of an object make any difference? (2) Are some sounds louder because the object is bigger?	Materials which could be tapped on: flower pots dishes medicine bottles glasses wooden blocks metal strips

Suggested Activities	Some Suggestions
d. Blow through an object which makes sounds. Experiment to find how to make some sounds louder than others.	Objects to blow through: tin horn paper noisemaker
2. Listen to children's voices. a. Note whether they sound alike. Have each child say "oh" in a whisper, in a soft voice, in a loud voice.	
b. Have each child say a phrase to introduce himself; *e.g.*, "I am John". Note whether they sound similar or different.	
c. Make a tape recording of each child's voice. Have each child say the same phrase. Play back the recording and identify each child's voice. Note whether each voice is loud, medium or soft.	
3. Discover whether the way you use your body makes any difference in the loudness of some sounds.	Ways to change loudness: clapping hands with more or less force stamping feet with more or less force

Suggested Activities	Some Suggestions
4. Compare the loudness of sounds made by different sized objects.	Ways to make sounds to compare: Move a large chair and a small chair. Listen to the footsteps of someone with a large adult foot and someone with a small child's foot. Swing a heavy rope and a jump rope so that it hits the ground. Bounce a large ball and a small ball. Bounce a soft and hard rubber ball. Blow up and break a large paper bag and a small paper bag. Strike two drums of different sizes. Shake two bells of different sizes. Pluck a tightly stretched large rubber band and a tightly stretched small rubber band.
5. Tap, push or shake some objects lightly and then with vigor. Note that some sounds are louder because the objects are tapped, pushed or shaken harder.	Objects to use: drum piano key triangle bell rhythm stick maraca

Suggested Activities	Some Suggestions
6. Discover that some sounds seem louder or softer because of other sounds or lack of sounds around them. Compare the "different" loudness of the same sounds in different surroundings.	Situations to compare using the same loudness: a clock ticking in a quiet room and in a noisy room a scissors placed on a desk in a quiet room and in a noisy room the teacher talking in a quiet room and in a noisy room
7. Have a group from the school orchestra play different instruments for the class. Listen for differences in the loudness of each instrument. Have each instrument played loudly and softly.	Instruments which may be used: piccolo drum clarinet trumpet trombone violin cello
8. Blow across open hollow objects of different sizes to make a whistle. Note whether some sounds are louder than others.	Objects which could be used: pop bottles mailing tubes jugs medicine vials medicine bottles milk bottles

Concept #3 - Loud sounds travel a long way

Suggested Activities	Some Suggestions
1. Discuss loudness of sounds. Listen to different sounds. Decide which are loudest. Listen to these sounds as you move away from them. Determine which sounds can be heard longer. Have other children listen at the same time. Compare all the observations.	Sound sources to use: child shouting child whispering door slamming bell ringing clock ticking impact of a large block on the floor impact of a small block on floor door shutting quietly impact of a pin on floor impact of a crayon on floor
2. Listen for unusually loud sounds in the street. Go outside and watch how far they can go away before you can no longer hear them. Repeat your observation several times. Record the approximate distances.	Examples of cars and trucks having loud sounds: fire engine police car motorized pile driver mobile compressed air hammer ambulance automobile advertising with public address system

Suggested Activities	Some Suggestions
3. Listen to a church bell. Walk away from it to determine how far you can hear it from the church. Return to the church and walk away in a different direction. Note that on a day without wind the direction does not make any difference but that on a windy day the direction may determine how far away you can hear it.	Other sources of sound to listen for: Northwestern National Bank organ Courthouse chimes carillon
4. Listen to a school band marching down the street or into a stadium. Note the instrument first heard. Try to identify some other instruments when the band is nearer. Note that the louder instruments can be heard first.	Other kinds of bands: circus band military band parade band

Concept #4 - Sounds far away do not sound as loud as those close by

Suggested Activities	Some Suggestions
1. While waiting at a railway station or bus stop, listen to sounds coming closer and then moving farther away. Discover that sound is not as loud when far away. Note that it becomes louder when it is closer.	Things to listen to as they approach and pass by: footsteps going by in the hall equipment cart rolling by in the hall marching band going by in the street big truck going along the street police car siren going along the street ambulance siren going along the street fire engine siren going along the street Christmas carollers going by the house train passing by train whistle sounding as it passes jet airplane flying overhead
2. Move each source of sound down the hallway away from the listener. Note whether the sounds seem to become louder or softer.	Things to do which produce sound: wind a watch ring a small bell bounce a ball strum lightly on a stretched rubber band rub two pieces of textured cloth together

Suggested Activities	Some Suggestions
3. Go out into the school yard. Have a child pound a stake into the ground. Listen to the pounding at some distance. Walk toward the sound. Observe the increased loudness.	Activities associated with pounding: carpenter driving nails during construction of a new house child playing at a work bench
4. Use the record player volume control to simulate "near" or "far away" sounds. Indicate approaching sounds with increased volume and sounds moving away with decreased volume.	Types of music: march gallop Note: Be sure to choose passages of music having constant volume on the recording.
5. Go out onto the playground. Have one child walk away from the group and then return as he beats a drum. Do the same with rhythm sticks. Observe the results. (Note: If you go more than 60 feet away from a building and walk directly toward the building, you might like to listen for an echo.)	Other activities which produce sound: jumping rope talking skipping bouncing a ball
6. Listen to children talking in the hall and classroom. Compare the weak, jumbled, far away sounds to clear, loud sounds of nearby talking.	

Concept #5 - Some sounds are able to communicate ideas

Suggested Activities	Some Suggestions
1. Compare your reactions to different sounds. Discuss:	
a. Sounds requiring learned responses.	Sounds to which there are learned responses: ringing fire drill bell ringing recess bell wailing of Civil Defense siren
b. Sounds which are associated with experiences. (1) Can the loudness and quality of these sounds change the meaning of the communicated idea?	Types of sounds which may be listened to: a polite "please" an angry "please" a disgusted "please" a pleading "please" angry dog bark friendly dog bark injured dog bark

Suggested Activities	Some Suggestions
(2) What do you think of when you hear certain sounds? Why?	Sounds which may usually produce definite thought associations: ringing bells (school, church, Christmas, trip) wailing or shrieking fire siren (fire burning) barking dog (visitors, pets) breaking glass (ball game) dripping water (leaking faucet) beating of drum (band playing, parade, band practice) slamming door (strong wind, someone coming) pounding of hammer (new house, repair)
- - - - - - - -	- - - - - - - - - - - -
(3) Are some sounds more pleasing? Why?	
(a) What sounds do you enjoy hearing? Why?	Kinds of sounds that may be suggested: animal sounds bleating lambs (baaing) mooing cows squealing pigs (snorting) singing birds barking dogs purring kittens family sounds father's footsteps mother singing a lullaby whistling boy cooing baby mechanical sounds whistling train ticking clock
- - - - - - - - - -	- - - - - - - - - -

Suggested Activities	Some Suggestions
(b) What sounds do you dislike to hear? Why?	**Sound sources that may be suggested:** chalk squeaking loud voice talking angry cat meowing window glass breaking chair scraping on floor book striking on desk
c. New sounds or those not associated with experiences stimulate in different ways.	
(1) How do different sounds make you feel? Why?	**Reactions to sounds which may be suggested:** happy sad sleepy angry hungry thirsty ambitious curious lonesome **Unfamiliar or new sounds:** hum of spinning top crack of gun shot scratch of blocks sliding down a board squeak of rocking chair hum of fluorescent light

Suggested Activities	Some Suggestions
(2) How do you feel when you hear (a) Fast music? Why? (b) Slow music? Why? (c) Soft music? Why? (d) Loud music? Why?	
2. Compare your reactions to sounds that are expected to the same sounds when they are unexpected.	Sounds to compare: shrilling of gym whistle thud of book as it strikes the floor report of pop gun pop of breaking paper sack pop of inflated balloon when pricked with pin
3. Play many different kinds of music on the phonograph. Interpret the music freely, pointing out the rhythmic patterns.	Ways to interpret sounds: running galloping skipping jumping hopping skating marching rocking swaying Record to use: Rhythmic Activities, Vol. 1 and 2

Suggested Sctivities	Some Suggestions
4. Use actions to show an understanding of the directions given by lyrics in songs. Act out the directions in the songs you sing.	Actions which word suggests: running sliding touching parts of the body clapping skipping hopping walking galloping Songs to use and their sources: "Skipping Song" - "Run and Run" The First Grade Book "Let's Go Walking" - "Stamping Land" Music Through the Day "Marching Song" - "Jimmy Cracked Corn" Music for Young Americans
5. Discuss ways to make sound effects to interpret an idea for a story, play or puppet show.	Examples of sound effects that could be tried: Hit a table or your chest with inverted paper cups for horses hoofs. Crumple paper slowly for fire. Drop sand or rice on paper for rain. Brush a fingernail on mohair for a whip sound. Crumple several pieces of cellophane for eggs frying. Slide together two small sheets of sandpaper glued to two wooden blocks with a loud, long backward stroke for the puff, puff, puff, puff of an engine. (Note: By changing accent and speed, the train can start, stop, climb mountains or fade into the distance.) (continued)

Suggested Activities	Some Suggestions
5. (continued)	Shake or strike sheet of tin for the roll of thunder. Bend the lip of an unwaxed paper cup flat. Press the sides together and slide your thumb and forefinger back and forth very slowly over the lip for squeaks like a rocking chair.
6. Play "sound" games (games which depend upon distinguishing between various sounds for success).	Sound games to try: a. Hide the Thimble Send one child from the room. Hide a thimble. Call the child and have him search for the thimble. Guide his search by clapping louder as he gets closer to his goal. b. "Good Morning, Teacher" Have one child sit in front of the group with his eyes blindfolded. Have some of the other children take turns saying "Good morning, teacher". The first child must guess who has spoken each time.
7. Listen to records which tell stories in sounds without words. Retell the stories in words, by drawing pictures or by acting them out.	Records to use: Sounds Around Us, Record 1 "Around the House", Parts I and II; Record 3 - "Around the Town", Parts I and II Pathways to Phonic Skills, Side 1 "Hearing and Identifying Sounds", Parts I and II

Suggested Activities	Some Suggestions
8. Plan a dramatization of a familiar story. Use a different child for each story-character part. Decide who shall play each part by selecting the child whose voice best fits the story-character. Experiment with changing the pitch and loudness of his voice to obtain a better fit to the story-character.	Stories to use: "Three Bears" "Billy Goats Gruff"
9. Tap out the rhythms to some favorite familiar songs. Have the other children try to guess the name of each song.	Songs to use: "Row, Row, Row Your Boat" "Mary Had a Little Lamb"
10. Design with the children several clapping rhythms which have meaning for action. Use different patterns to communicate different ideas.	Other sound makers to replace clapping for giving directions: bell ringing pencil tapping whistle blowing leg slapping
11. Have the teacher read poetry. Give a free interpretation of the rhythm by using body movements. Discuss the feelings which are aroused by the rhythm of the words. Act out the story in the poem.	Sources of suitable poetry: A Time For Poetry Poetry Time (recording)

Suggested Activities	Some Suggestions
12. Speak to the children in a loud voice and then a soft voice, with clear enunciation, and then poor enunciation. Discuss and compare which can be more easily understood.	
13. Play a whisper game. Whisper a message to next person. See if the last person in the group hears the original message.	
14. Listen to the radio, sound films or television to learn new things, to enjoy a story, or to hear vocal and instrumental music. (Note: Machines can be used to receive signals and to convert them into sounds which convey ideas.)	In-school listening: Television for Grade 1: Art, Health, Music or Science Radio lesson for Grade 1: "Tell Me A Story"
15. Make a list of devices which involve sound in some part of their operation during the transmission of ideas.	Direct signal devices: school or church bells police whistle automobile horn train engine's bell and/or horn Sound transmitting devices: telephone television radio public address system (continued)

Suggested Activities	Some Suggestions
15. (continued)	Sound recording and reproducing devices: sound motion picture camera and projector record cutter and players
16. Make a list of different types of occupations and the sounds which are related to each type.	Sounds associated with different occupations: entertainment - singing choir, dancing feet medical services - whirring dentist's drill and humming x-ray transformer transportation - roaring diesel engine motor and puffing steam engine machinist - grinding metal castings carpenter - sawing lumber
17. Design your own rhythm pattern of sound to identify yourself. Have each child make up his own pattern and illustrate it for the group. Play a game in which one child at a time is "it", closes his eyes and tries to identify each of the other children. Each child to be identified does his own rhythm pattern of sound and the child who is "it" tries to identify him.	Kinds of sounds which could be used: clapping whistling walking talking yodeling humming yelling

Suggested Activities	Some Suggestions
18. Tap on different objects to determine how high or how low a sound they produce. Make a series of graduated sounds as in a scale. Use the scale to play a tune if possible.	Objects which can be used to make a scale: flower pots of varying sizes blocks of wood of varying sizes metal strips of varying sizes glasses or bottles with varying levels of water
19. Make a wooden or metal xylophone. (See the new elementary music curriculum guide for detailed instructions.) Use xylophone to play a tune.	
20. Make a rhythm pattern of sounds. Use various high and low sounds, keeping the rhythm pattern. Practice recognizing rhythm patterns in different combinations of high and low sounds.	Instruments which are usable: xylophone piano rubber band rhythm sticks maracas guitar

Suggested Activities	Some Suggestions
21. Discover whether any of the songs you sing have a rhythm pattern. Note whether different rhythm patterns occur in the same song.	Songs to use and their sources: "One-A-Larkey" - "Too-Ra-Ray" Music for Young Americans "See My Pony" - "The Gardener" "Giants and Fairies" Music Round the Clock "The Muffin Man" The First Grade Book "Little Red Wagon" Music Through the Day
22. Make a rhythm pattern of sounds varying timing, as well as high and low sounds. Make up your own melodies. Have the class hum them.	

Concept #6 - Sounds come from many different sources

Suggested Activities	Some Suggestions
1. Experiment with a variety of objects and materials to create different sounds. Note that different materials and objects make different sounds.	Things to do: wood -- slam a door tramp on the floor knock on a table metal -- tap the radiators rattle tin cans glass -- clink jars scratch on glass jars paper -- rustle paper tear paper stones -- allow some stones to hit floor clink some stones together rubber -- pluck on stretched rubber bands bounce different balls seeds -- shake dried gourds shake some seeds in a box cloth -- rip a piece of cloth rub two pieces of textured cloth together

Suggested Activities	Some Suggestions
2. a. Make sounds in different ways (Note: The cause of sound is energy of motion.)	Ways to make an object or material produce sounds: striking rubbing plucking tapping banging shaking crushing
b. Obtain some strong strings of varying lengths and thicknesses. Attach one end firmly to a nail in a board. Hammer nails into the other end of the board. Stretch the string tight and attach it to a nail at the other end of the board. Insert a thin board with a very thin edge under the strings to raise them off the board. Pluck the strings. (Note: To make psaltery see directions in the Elementary Music Curriculum Guide.)	Materials that could be stretched and plucked: rubber bands wire string or cord

Suggested Activities	Some Suggestions
3. Listen to the sounds on a windy day. Imitate some of these sounds. Discover that wind sounds are made by air passing through, over or around things.	Sounds to listen for on a windy day: rustling leaves rattling tin roofs squeaking tree limbs whistling wind in trees rattling windows flapping clothes flapping window shades flapping flags clanging street signs Ways to imitate sounds: blowing into a bottle blowing into cupped hands blowing into mailing tube blowing between teeth blowing over edge of paper blowing a whistle
4. Improvise a stage curtain. Play a game of identifying sounds. Have each child make a sound behind the curtain. Have the other children guess the source of different sounds.	Ways to make sounds: cutting paper pouring water into a jar crushing cellophane clinking glasses together scratching on textured cloth with a fingernail blowing across a bottle top beating a drum blowing a whistle bouncing a ball chewing on a carrot breaking a paper bag

(continued)

Suggested Activities	Some Suggestions
4. (continued)	winding a watch pouring sand into a pail walking running writing on chalk board breaking a balloon letting air out of a balloon rubbing two pieces of sandpaper together tumbling stones in a tin can imitating animal sounds shelling peanuts
5. Listen to unfamiliar or unexpected sounds. Try to discover the source and causes. a. Recall and tell about your experiences of investigating unusual sounds. b. Compose stories and poems about those experiences.	Unfamiliar or unexpected sounds: squeaking chair tapping radiator hissing radiator thudding of a dropped book rumbling thunder far away creaking walls creaking stairs booming of ice as it cracks in the lake dripping water from faucet into the sink popping of nails as they pull from wood during cold weather hooting owl crying of neighbor's baby rubbing of snow ladened branches against the house breathing of someone during sleep igniting of gas furnace dripping water faucet into a pan of water

Suggested Activities	Some Suggestions
6. Discuss what kinds of sounds you can make with your voice, your body actions or by moving objects.	
a. List the different ways of making voice sounds.	Sounds made with the voice: talking singing humming crying laughing whispering
b. Sing a familiar rhythmic song. Experiment with different rhythm instruments, body actions and objects to accompany the song with pleasing rhythmic sound.	Ways to make sounds with body actions: clap your hands tap your toes whistle rub your hands snap your fingers tap your heels Ways to cause objects to produce sounds: shake pluck strike slap
c. Have the entire class combine their rhythmic sounds to accompany the same song.	Ways the class can make sounds in rhythm: clapping walking hopping galloping stamping bouncing balls skipping

Suggested Activities	Some Suggestions
7. Stand with your back to an open classroom window. Try to identify the sources of sounds heard in the street. Identify the sound producing objects. Tell what you think is happening to make the sounds you hear.	Sounds you might hear and their sources: shouting children barking dog growling dog honking horn slapping of rope on the ground shrill police whistle shrieking fire truck siren hum of truck tires on pavement singing bird howling wind screeching brakes click of stop and go sign grinding of car to a stop whine of car during acceleration sound of footsteps on the pavement swishing of automobile tires on a wet street
8. Make a list of the kinds of sounds you can hear at home. Observe what makes each sound. Draw pictures with captions of the objects which produce these sounds for a movie roll.	Examples of objects producing different sounds: baby crying or cooing tea kettle water boiling mother beating a cake

Suggested Activities	Some Suggestions
9. Answer the question: "What seasonal sounds do we hear?". Make a seasonal mural to indicate the special sounds heard during each season. List descriptive phrases of sounds heard to accompany the mural. Compose these descriptive phrases into blank verse.	Seasonal sounds to listen for: patter of raindrops hum of a grass mower song of birds crunch of snow drone of a model airplane swish of feet through a puddle clink of ice skates rumble of roller skates buzz of insects scrape of a snow shovel clap of thunder
10. Watch different musical instruments being played in the school orchestra. Open a piano to see the wires and strikers. Examine each of the other musical instruments. Find out how each instrument makes musical sounds.	Instruments to study: piano horn auto harp tone bells flutophone or tonette drum bells violin
11. Discover the sounds which birds make by going outdoors to listen to them. a. Can you identify the call or song of each bird?	Birds to listen for: robin pigeon flicker blue jay mourning dove house sparrow chickadee brown thrasher red-headed woodpecker

Suggested Activities	Some Suggestions
b. Do any birds make sounds other than their call or song? What?	Other sounds made by birds: bill -- woodpecker wings -- flocks of birds body -- splash of ducks landing in water
12. Listen for sounds especially associated with a special place which you visit.	Places to visit: city street farm school park woods bakery circus airport new house being built pet shop dairy zoo library lake machine shop grocery store home
13. Take a walk to hear sounds made by people at work in your neighborhood. Discover how each sound is made.	Sounds you may hear: clanking of mail box - by postman hammering and sawing wood - by carpenters rattling of air drill (jack hammer) - by city street workers swishing of paint brush - by painters ringing of church bells - by church sexton (continued)

Suggested Activities	Some Suggestions
13. (continued)	clinking of milk bottles - by milkman talking - by all kinds of people
14. a. Cut out pictures of machines, animals and people that make sounds. Group the pictures on charts under headings which identify the thing producing the sound.	Headings to use on the charts: Animals Make Sounds People Make Sounds Machines Make Sounds
b. Find pictures of mechanical things that make sounds. Use these to make picture charts. Have committees classify them as to where they might be heard.	Mechanical objects which make sounds: at home -- alarm clock telephone vacuum cleaner door bell in the city -- airplanes buses fire engines motor shovels on the farm -- tractor milking machine windmill electric motor

Suggested Activities	Some Suggestions
15. Make chart of descriptive sounds, words found in textbooks and library books. Classify them under headings.	Examples of sound words: Machines motor boat -- put, put, put train -- toot, toot Weather rain -- tap, tap, tap wind -- oh-o-o, oh-o-o Animals cow -- moo, moo lamb -- baa, baa People laugh -- ha, ha, ha exclaim -- oh, oh, oh feet -- tap, tap, tap
16. Collect several boxes. Put rubber bands in one; marbles in another; seeds in the third. Let the children guess the contents of each when they are rolled or shaken.	

Suggested Activities	Some Suggestions
17. Experiment with different objects and materials that might be used to create rhythmic sounds. Use these to make rhythm instruments.	Materials that can be useful in making rhythm instruments: coffee cans boxes, cereal bottles bottle caps sandpaper wooden blocks seeds drinking glasses pebbles inner tube rubber pie plates flower pots small bells strong plastic canvas chamois skin wooden beads dowel sticks
18. Go to the park. Sit quietly and listen to the sounds of nature, people, animals and machines. Discover the source of each sound.	Sounds you may hear: chattering squirrel chirping cricket tapping woodpecker humming grass mower squeaking swings singing birds swishing of flying bird buzzing bee, fly, or mosquito laughing children splashing water rustling leaves squeaking and bumping teeter totter

Concept #7 - Many animals are identified by sound they make or do not make

<table>
<tr><th>Suggested Activities</th><th>Some Suggestions</th></tr>
<tr><td>1. Collect pictures of animals that can be identified by the sounds they make. Listen to records of animal sounds.</td><td>
Animals whose sounds can be identified:
<table>
<tr><th>Farm animals</th><th>Wild animals</th></tr>
<tr><td>cow</td><td>lion</td></tr>
<tr><td>horse</td><td>elephant</td></tr>
<tr><td>turkey</td><td>monkey</td></tr>
<tr><td>goose</td><td>wolf</td></tr>
<tr><td>chicken</td><td>frog</td></tr>
<tr><td>pig</td><td>tiger</td></tr>
<tr><td>sheep</td><td>seal</td></tr>
<tr><td>dog</td><td>coyote</td></tr>
<tr><td>cat</td><td>woodchuck</td></tr>
<tr><td>mule</td><td></td></tr>
<tr><td>duck</td><td></td></tr>
<tr><td>rooster</td><td></td></tr>
<tr><td>hen</td><td></td></tr>
</table>
Record to use:
Pathway to Phonic Skills, Side 2, Band 2
"Classifying Sounds: Farms and Zoo"
</td></tr>
</table>

Suggested Activities	Some Suggestions
2. Bring your pets to school and listen for sounds they make or do not make. Discover that many animals do not make sounds.	Pets to listen to: cats -- purr, meow dogs -- bark, whine, growl chicks -- peep rabbits salamanders turtles goldfish guppies snails
3. Discuss animal sounds that are made by the throat and find words to identify them. Read "True Book of Sounds We Hear" to gain further information and verify your findings.	Animal sounds: moo, moo baa, baa woof, woof mew, meow cluck, cluck peep, peep grrrr yip, yip
4. Listen to sounds that some birds and some insects make with their wings. Learn to identify the animals by these sounds if they are characteristic.	Examples of birds and insects: mosquitoes flies flocks of birds bees crickets

Suggested Activities	Some Suggestions
5. Discuss some other ways birds, insects and other animals make sounds (not listed in activities 1 - 4 under Concept #7).	Examples you may include: beaver -- tail rattlesnake -- tail cicada -- legs
6. Learn to identify sounds of: a. Birds b. Animals (1) Listen to recordings of animal sounds. Replay the record and imitate the animal sounds.	Records to use: Pathways to Phonic Skills, Side 2, Band 2 "Classifying Sounds: Farm and Zoo" Muffin In The Country
7. Visit a zoo to hear different bird and other animal sounds. Imitate these sounds.	Animals to listen to: lion monkey seal donkey macaw peacock parrot

Suggested Activities	Some Suggestions
8. Note that animals do not always make the same kind of sound. Recall times when you have heard birds or other animals who seem excited.	Sounds you may recall: chirping of birds when a cat or other danger is nearby barking of dog with an animal at bay
9. Recall situations where animals seem to listen to the sounds made by other animals.	Situations you may recall: cats listening to dogs barking song birds listening to blue jays parakeets listening to dogs or other birds

Concept #8 - Many birds make musical sounds

Note: In teaching this concept the following definition of music which appears in Webster's New Collegiate Dictionary may be used...musical sounds are those "having rhythm and melody".

Suggested Activities	Some Suggestions
1. Discuss sounds made by pet birds. Observe whether they sing the same melody each time.	Common pet birds: parakeet canary
2. a. Play records of bird songs to learn to recognize common bird songs.	Birds to learn to identify: robin brown thrasher blue jay house wren chickadee English or house sparrow pigeon Records to use: *Song Birds of America* *A Field Guide to Bird Songs*
b. Try to imitate the bird calls. Record your imitations on a tape recorder and play them back. Attempt to improve your imitations.	

<table>
<tr><th>Suggested Activities</th><th>Some Suggestions</th></tr>
<tr><td>c. Hear different bird sounds at a pet store.</td><td></td></tr>
<tr><td>3. Take a walk during early fall to listen for bird calls. Note whether all the bird calls are musical. Repeat the walk in winter and in spring.</td><td></td></tr>
<tr><td>4. Compare birds making musical sounds with those that do not make musical sounds. Note that all birds do not have musical calls.</td><td>Birds to compare to one another:<table><tr><td>robin</td><td>cowbird</td></tr><tr><td>canary (at pet store)</td><td>parrot (at pet store)</td></tr><tr><td>brown thrasher</td><td>crow</td></tr><tr><td>meadow lark</td><td>blue jay</td></tr></table></td></tr>
</table>

III. EVALUATION

A. In evaluating the changes in behavior occurring during the children's work on this unit, the teacher may find the following questions helpful:

1. Do the children respond satisfactorily to informal oral quizzing? Do the children understand the facts and concepts included in the unit?

2. Can the children carry on acceptable discussions about the unit's content?

    a. Can they clarify to each other the concepts in the unit?

    b. Do they use the minimum vocabulary of this science unit?

    c. Can they explain to guests the science understandings included in their displays and in the unit?

    d. Do they feel the need for, look for, and use more accurate words than previously in explaining their understandings?

3. Do the children raise pertinent questions concerning the study throughout the unit?

4. Do the children participate actively and constructively in the planning, experimenting and discussion? Do the more creative children suggest variations to the learning activities in this unit?

5. Are the children beginning to show scientific attitudes toward phenomena?

    a. Do they ask what, how and why?

    b. Do they ask questions more frequently?

    c. Do they bring things related to the unit to show and place on the science table?

    d. Do they ask questions as a result of their own observations?

    e. Are they accurate in their observations and science information?

B. In evaluating changes in behavior at the end of the unit resulting from the children's work on this unit, the teacher may find the following questions helpful:

1. Are the children more aware of sounds around them? Do they comment on sounds more frequently and with greater accuracy of expression?

2. Have the children developed an awareness that some sounds are annoying?

3. Are the children aware of the value of understanding various sounds for their own safety?

4. Are the children sensitive to sounds?

    a. Have the children developed an increased interest in music and rhythms?

    b. Do the children obtain pleasure from experimenting with various sounds?

IV. BIBLIOGRAPHY

A. *Books*

Arbuthnot, May Hill, *A Time for Poetry*, rev. ed., Scott Foresman, 1961.

A fine collection of old and new poetry which illustrates the rhythm of sounds.

Barnard, J. Darrell, *et al*, *Science, Health and Safety - Book 1*, Macmillan Science-Life Series, 1959.

A science textbook which contains helpful suggestions on the movement of sound.

Berg, Richard C., *et al*, *Music for Young Americans*, American Book, 1959.

A collection of songs which provides an opportunity for a wide variety of musical experiences. Suggestions for accompaniment by rhythm instruments are included.

Blough, Glenn O., *et al*, *Elementary-School Science and How to Teach It*, rev. ed., Dryden Holt, 1958.

A methods text which contains good background information for the teacher and offers some suggestions for experiences useful in teaching sound.

Borten, Helen, *Do You Hear What I Hear?*, Abelard, 1960.

An excellent picture book for use in introducing the unit. Stimulates the children's curiosity about the sounds around them and increases their awareness of the differences in reactions to the same sounds.

Brown, Margaret Wise, *Country Noisy Book*, Harper, 1940.

A picture story book about the sounds heard by a little dog traveling to the country in a closed box.

Brown, Margaret Wise, *Indoor Noisy Book*, Harper, 1942.

A story book which arouses children's interest in knowing and identifying sounds in their homes.

Brown, Margaret Wise, Noisy Book, Harper, 1939.

A story book which encourages children to find out the source of unfamiliar sounds.

Brown, Margaret Wise, SH-H-hhh....Bang, Harper, 1943.

A picture story book about a little boy in a town where everyone whispered.

Craig, Gerald S. and Bernice C. Bryan, Science and You, Ginn, 1955.

A first grade science textbook with a good unit on sound, containing suggestions for simple activities and experiments for the children.

Craig, Gerald S., Science for the Elementary School Teacher, new ed., Ginn, 1958.

A teaching methods book which provides some good background information for the teacher.

Elkin, Benjamin, The Loudest Noise in the World, Viking, 1954.

A picture story book about a city full of people who discover that when they are quiet they can hear the sounds of nature.

Frasier, George Willard, et al, We Look and Listen, Singer, 1959.

A first grade science textbook which makes helpful suggestions for answering the question, "What can you hear?".

Geralton, James, The Story of Sound, Harcourt, Brace, 1948.

An easy reading book which provides information for the first grade teacher.

Hughes, Langston, The First Book of Rhythms, Watts, 1954.

A book which guides the reader through the rhythms of everyday living.

Knight, David C., The First Book of Sound, Watts, 1960.

A book which provides information for the teacher and suggests some simple experiments for the children.

Kuskin, Karla, All Sizes of Noises, Harper, 1962.

A new picture book telling in verse about the sounds in a child's day.

Mursell, James L., et al, Music for Living Through the Day, Burdett, 1956.

An approved music book which can be used for discovering rhythm patterns of sound in songs the children sing.

Pine, Tillie and Joseph Levine, Sounds All Around, McGraw, 1959. pp. 5-10, 43-47

A book which can be valuable in motivating a study of the unit. (The remainder of the book is not appropriate to the unit.)

Pitts, Lila Belle, et al, The First Grade Book, Ginn, 1959.

An approved music text for grade one which has good songs for imitation of animal sounds, tone matching and communication of ideas through rhythms and lyrics.

Podendorf, Illa, True Book of Science Experiments, Children's Press, 1954.

A book containing an informative chapter on sound which suggests several experiments to make children aware that some sounds are louder and travel farther than others.

Podendorf, Illa, True Book of Sounds We Hear, Children's Press, 1955.

An easy reading book containing large pictures which is especially usable for introducing the sound unit. It begins with general sounds and has good material on the common animal sounds with which children should become familiar.

Schneider, Herman, and Nina Schneider, Science for Work and Play, Heath, 1954. pp. 91-95

A first grade science textbook which contains material contributing to an understanding of the entire unit.

Wolfe, Irving, et al, Music 'Round the Clock, Follett, 1959.

An approved music book for first grade which is a good source of songs useful in carrying out many of the learning experiences.

Zolotow, Charlotte, The Quiet Mother and the Noisy Little Boy, Lothrop, 1953.

A picture story book which is especially good after the unit on sound has been taught because the children can better understand the humor after they have become more aware of sounds.

B. Records

Childhood Rhythms, Vol. I, II, Ruth Evans, Box 132, P. O. Branch X, Springfield, Massachusetts.

Two albums of records which introduce simple rhythmic movement, singing games, and bouncing and catching balls to music.

Creative Rhythms for Children, by Phoebe James, Phoebe James Productions.

A record of piano selections which includes excellent rhythms for children's interpretation.

A Field Guide to Bird Songs, Cornell Press, Ithaca, New York.

An expensive album which contains a very complete collection of bird calls.

Muffin in the City, Young Peoples Records, Wm. R. Scott, Inc., New York, New York.

A record which has the sounds suggested in the Noisy Book which can be used with the book.

Muffin in the Country, Young Peoples Records., Wm. R. Scott, Inc., New York, New York, 1957.

A record which has the sounds suggested in the Country Noisy Book which can be used with the book.

Pathways to Phonic Skills, American Book Co., Chicago, Ill., 1959.

Sections of these records present excellent opportunities for discriminating between various kinds of sounds and for identifying sounds around us. Many of these sounds cannot be reproduced in a classroom except on record.

Poetry Time, by May Hill Arbuthnot, Scott Foresman & Co., Chicago, Illinois, 1951.

An album of three records to accompany the anthology, A Time for Poetry.

Rhythmic Activities, Vol. 1 and 2, RCA Victor Division, Lyons, Chicago, Illinois, 1947.

A record presented in simple form to help children identify various rhythmic patterns.

Songbirds of America, Cornell Press, Ithaca, New York, 1954.

An album of two recordings which has a good tone quality but does not have all the bird calls suggested in the unit.

Sounds Around Us, Scott Foresman & Co., Chicago, Illinois, 1951.

An album of records designed to make children aware of sounds related to things which are familiar and to help him interpret the significant sounds around him.

V. MATERIALS AND EQUIPMENT

A. SCHOOL

Auto harp
Bags, large and small
Balls
Bands, rubber
Beads, wooden
Bells, large and small
Blindfold
Blocks, wooden
Books
Canvas
Cellophane
Chairs
Clock
Cloth, textured
Crayon
Cups, paper
Desk drawer
Dishes
Door
Dowel sticks
Drums
Drum sticks
Faucet
Flower pots
Flutophone
Glass
Glasses, drinking
Hammer
Horn
Instruments, orchestra
Instruments, rhythm
Jar, paste
Jump rope
Leaf
Light switch
Magazine
Maraca
Mailing tube
Metal
Metal strips
Pan, pie
Paper
Paper noisemaker
Pebbles
Pencils
Piano
Plastic, strong
Recorder, tape
Ruler
Sand
Sandpaper
Scissors
Seeds
Shades
Shoes, gym
Shoes, ordinary
Skates, roller
Stake
Stones
String
Tom-tom
Tonal bells
Tonette
Top
Triangle
Watch
Whistle
Window
Wire
Wood

B. HOME

Bottles, pop, milk, medicine

Boxes, cereal

Boxes (variety)

Caps, bottle

Cloth items to drop

Handkerchief

Jug

Metal items to drop

Oatmeal carton

Pail

Paper, cellophane

Paper noisemaker

Paper sack

Pets

Pictures from magazines

Plastic items to drop

Plates, pie

Pots, flower

Rattle

Rice

Rubber inner tube

Stones

Textured cloth

Thimble

Tin

Wood items to drop

VI. APPENDIX

CROSS-REFERENCE OF ACTIVITIES TO CONCEPTS

	Concept							
	1	2	3	4	5	6	7	8
Concept #1								
Activity No. 1	x	x				x		
Activity No. 2	x	x		x		x		
Activity No. 3	x	x	x	x	x	x		
Activity No. 4	x	x	x	x	x	x		
Activity No. 5	x	x	x	x	x	x		
Activity No. 6	x	x	x	x	x	x		
Activity No. 7	x	x	x		x	x		
Activity No. 8	x				x	x		
Activity No. 9	x				x	x		

	Concept							
	1	2	3	4	5	6	7	8
Concept #2								
Activity No. 1	x	x				x		
Activity No. 2	x	x			x			
Activity No. 3	x	x				x		
Activity No. 4	x	x				x		
Activity No. 5	x	x				x		
Activity No. 6	x	x				x		
Activity No. 7		x				x		
Activity No. 8	x	x				x		
Concept #3								
Activity No. 1	x	x	x	x				
Activity No. 2		x	x	x				
Activity No. 3		x	x	x				
Activity No. 4		x	x	x				
Concept #4								
Activity No. 1	x	x		x		x		
Activity No. 2		x	x	x				
Activity No. 3		x	x	x				
Activity No. 4				x				
Activity No. 5		x	x	x				
Activity No. 6		x		x				

	Concept							
	1	2	3	4	5	6	7	8
Concept #5								
Activity No. 1	x				x			
Activity No. 2	x				x			
Activity No. 3					x			
Activity No. 4					x			
Activity No. 5	x				x	x		
Activity No. 6					x			
Activity No. 7					x			
Activity No. 8					x			
Activity No. 9					x			
Activity No. 10					x			
Activity No. 11					x			
Activity No. 12					x			
Activity No. 13					x			
Activity No. 14					x			
Activity No. 15					x			
Activity No. 16	x				x	x		
Activity No. 17					x			
Activity No. 18					x			
Activity No. 19					x	x		
Activity No. 20					x			
Activity No. 21					x			
Activity No. 22					x			

	Concept							
	1	2	3	4	5	6	7	8
Concept #6								
Activity No. 1	x	x				x		
Activity No. 2		x				x		
Activity No. 3	x				x	x		
Activity No. 4	x					x		
Activity No. 5	x					x		
Activity No. 6	x					x		
Activity No. 7	x				x	x		
Activity No. 8	x					x		
Activity No. 9	x					x		
Activity No. 10						x		
Activity No. 11	x					x	x	
Activity No. 12	x					x		
Activity No. 13	x	x			x	x		
Activity No. 14						x	x	
Activity No. 15						x	x	
Activity No. 16						x		
Activity No. 17	x				x	x		
Activity No. 18	x				x	x		

	Concept							
	1	2	3	4	5	6	7	8
Concept #7								
Activity No. 1							x	
Activity No. 2							x	
Activity No. 3					x		x	
Activity No. 4	x				x	x	x	x
Activity No. 5					x	x	x	
Activity No. 6					x	x	x	x
Activity No. 7							x	x
Activity No. 8					x	x	x	
Activity No. 9					x		x	
Concept #8								
Activity No. 1					x			x
Activity No. 2								x
Activity No. 3					x			x
Activity No. 4								x

Typed by NM
8-22-62

BIBLIO. - BOOKS

For discussion purposes only

A SELECTIVE BIBLIOGRAPHY

of

BOOKS FOUND USEFUL

in the

TEACHING OF THE SCIENCE UNITS

for
Grade One

Correlated to the Unit Titles as found in the
Reorganized Science Curriculum

Minneapolis Public Schools
Science Department
8-24-64

For discussion purposes only

Grade One

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	Some ways of learning science....	1	Gray
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	B. Animals use their senses.........	4	Green
	C. Our bodies.......................	6	Green
	D. Learning about plants............	7	Green
	E. Kinds of seeds, how they travel..	8	Green
III. Energy			
	A. Electricity works for us.........	10	Yellow
	B. What we can learn from sounds....	11	Yellow
	C. Light and shadows................	13	Yellow
IV. The Universe			
	B. Our star, the sun................	14	Blue

The annotations for books found on the following pages were obtained from many bibliographies which were consulted in preparation of this list.

Introduction to Science

Some ways of learning science	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Challand, Dr. Helen and Elizabeth Brandt. 1963 SCIENCE ACTIVITIES FROM A TO Z ** Children's Press. $5.50	X		X		
Goodspeed, J. M. 1957 LET'S GO TO A DAIRY ** Putnam. $1.86 A description of what happens to raw milk in every step of its journey from the dairy farm to you. This is an excellent book to use when planning a field trip to a dairy farm or dairy and after returning to the classroom.	X	X		X	
Vergara, William C. 1958 SCIENCE IN EVERYDAY THINGS ** Harper. $4.95 Answers to hundreds of interesting and scientific questions.	X				

* Good
** Excellent

SCIENCE RESOURCE BOOK BIBLIOGRAPHY - Grade One
(Addendum)

Addition to Page 1

Introduction to Science

Some ways of learning science	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Newbury, N. F and Armstrong, H. A. 1962 THE JUNIOR SCIENTIST ** Sterling $3.69 This book is divided into topics with simple experiments for the children to carry out themselves. The discovery method of learning, with emphasis on observation and recording is stressed.	X				

* Good
** Excellent

II. Living Things

A. Animals need food	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Barker, Will. 1956 FAMILIAR ANIMALS OF AMERICA ** Harper. $4.95 A well-written, authoritative guide to the subject.	X				
Henry, Marguerite. 1955 WAGGING TAILS - AN ALBUM OF DOGS ** Rand. $2.95 The full page color illustrations by Wesley Dennis will be enjoyed by any child or adult. Twenty-six different breeds of dogs are described. Excellent evidence of what can be accomplished by selective breeding.	X	X		X	
Jordan, E. L. 1952 HAMMOND'S NATURE ATLAS OF AMERICA ** Hammond. $4.95 Information on the plants and animals to be found in this country.	X	X			
Podendorf, Illa, 1956 THE TRUE BOOK OF ANIMALS OF THE SEA AND SHORE ** Children's Press. $2.00 Includes animals with fur, fins, many legs, shells, sharp spines, and soft bodies. Large colorful pictures supplement the text.	X	X			

* Good
** Excellent

II. Living Things - A. (continued)	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Possell, Elsa. 1961 THE TRUE BOOK OF DOGS * Children's Press. $2.00 Many drawings show the characteristics of different breeds of dogs. The text explains how hunting dogs are used and the work done by some dogs. The last few pages give directions for proper care of pet dogs. A book many first grade children will enjoy even before they can read the text.	X	X		X	
Zim, Herbert S. 1950 FROGS AND TOADS ** Morrow. $2.78 An elementary introduction.	X	X			

* Good
** Excellent

SCIENCE RESOURCE BOOK BIBLIOGRAPHY - Grade One (Addendum)

Addition to Page 3

II. Living Things

A. Animals need food	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Mitchell, Arthur A. 1964 FIRST AID FOR INSECTS ** Harvey House $2.50 Here is a book to answer the questions of every boy and girl who ever found an insect and wanted to keep it. How can I keep it alive? Is it dangerous? These and many more questions like them are answered in authentic text and colorful illustrations.	X	X		X	

* Good
** Excellent

II. Living Things

B. Animals use their senses	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Barker, Will. 1956 FAMILIAR ANIMALS OF AMERICA ** Harper. $4.95 A well-written, authoritative guide to the subject.	X	X			
Blough, Glenn O. 1956 AFTER THE SUN GOES DOWN: THE STORY OF ANIMALS AT NIGHT ** Whittlesey. $2.96 Describes the night activities of whippoorwills, screech owls, flying squirrels, opossums, bats, tree crickets, katydids, moths, fireflies, frogs and beavers. Colorful drawings by Jeanne Bendick.	X			X	
Goudey, Alice E. 1958 HERE COME THE WILD DOGS * Scribner. $2.75 The habits and behavior of the red fox are described in a story of a particular fox family. Attractively illustrated.	X			X	
Jordan, E. L. 1952 HAMMOND'S NATURE ATLAS OF AMERICA ** Hammond. $4.95 Information on the plants and animals to be found in this country.	X	X			

* Good
** Excellent

II. Living Things - B. (continued)	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Zim, Herbert. 1950 FROGS AND TOADS ** Morrow. $2.78 An elementary introduction.	X	X			

* Good
** Excellent

For discussion
purposes only

Grade One

II. Living TThings

C. Our Bodies	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Tannenbaum, Harold and Stillman, Nathan. 1960 VERY TINY LIVING THINGS (MICROBES) ** Webster. 76¢ This book contains information relative to 7 of the 12 concepts on this unit. Good suggestions for work with the microscope for young children.	X	X	X	X	

*Good
**Excellent

SCIENCE RESOURCE BOOK BIBLIOGRAPHY - Grade One
(Addendum)

Additions to
Page 6

II. Living Things

C. Our Bodies	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Hinshaw, Alice 1959 YOUR BODY AND YOU ** Children's Press $2.50 Simple text and illustrations explain the structure and function of the human body.	X			X	X

* Good
** Excellent

II. Living Things

D. Learning about plants	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Dickinson, Alice. 1953 THE FIRST BOOK OF PLANTS ** Watts. $2.50 Introduces plant physiology and tells how plants make food, how they reproduce, and how seeds travel.	X		X		
Jordan, E. L. 1952 HAMMOND'S NATURE ATLAS OF AMERICA ** Hammond. $4.95 Information on the plants and animals to be found in this country.	X	X			
Udry, Janice May. 1956 A TREE IS NICE ** Harper. $2.73 A picture book that might help develop desirable attitudes and greater appreciation for trees. The bright full-page paintings of Marc Simont add to the book's charm.	X	X		X	

* Good
** Excellent

II. Living Things

E. Kinds of seeds, how they travel	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Selsam, Millicent E. 1959 SEEDS AND MORE SEEDS * Harper. $2.19 Benny learns by experimentation and observation what seeds are, how they grow, where they come from, and how they are dispersed.			X		X
Stefferud, Alfred. 1956 THE WONDERS OF SEEDS ** Harcourt. $2.75 Tells of methods of dispersal, effects of scientific pollination, hereditary effects in plants, and of the astounding endurance and long life of some kinds of seeds.	X				
Tannenbaum and Stillman. 1960 SEEDS AND HOW THEY GROW ** Webster. 76¢ This book explains very accurately, and gives examples suitable to, our first grade unit on Living Things. Text is childlike and attractive.	X			X	X

* Good
** Excellent

II. Living Things - E. (continued)	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Udry, Janice May. 1956 A TREE IS NICE ** Harper. $2.73 A picture book that might help develop desirable attitudes and greater appreciation for trees. The bright full-page paintings of Marc Simont add to the book's charm.	X	X		X	
Webber, Irma E. 1944 TRAVELERS ALL, THE STORY OF HOW PLANTS GO PLACES ** Scott. $2.50 This book illustrates the various methods of plants for scattering their seeds.		X		X	

* Good
** Excellent

III. Energy

A. Electricity works for us	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Shapp, Martha and Charles. 1961 LET'S FIND OUT WHAT ELECTRICITY DOES * Watts. $2.50 Vocabulary limited to 100 words.		X		X	X
Tannenbaum, Harold and Stillman, Nathan. 1960 ELECTRICITY AND HOW IT IS MADE ** Webster. 76¢ A good presentation of how electricity is made plus the all-important suggestions for how to make some electricity ourselves and "discover" other things about electricity.	X		X	X	

* Good
** Excellent

III. Energy

B. What we can learn from sounds	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Nelson, Lee. 1960 ALL THE SOUNDS WE HEAR ** Steck. $2.25 For young children, tries to make clear various sounds and the words used to describe them.	X			X	
Pine, Tillie S. and Levine, Joseph. 1958 SOUNDS ALL AROUND ** Whittlesey. $2.63 An elementary explanation of sound--what causes sound, how it travels, how it can be pitched high or low, softened, made louder, or stopped and how it can be used for fun. Suggest experiments which utilize materials found in the home.		X	X	X	
Podendorf, Illa. 1954 THE TRUE BOOK OF SCIENCE EXPERIMENTS ** Children's Press. $2.00 Simple experiments are explained in language readily understandable for young students. Experiments deal with magnetism, gravity, sound, and other physical phenomena.	X	X	X	X	

* Good
** Excellent

III. Energy - B. (continued)	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Tannenbaum, Harold and Stillman, Nathan. 1960 SOUNDS AND HOW THEY ARE MADE ** Webster. 76¢ Completely covers the concepts to be taught in this unit. Much information given in simple language.		X		X	

* Good
** Excellent

III. Energy

C. Light and shadows	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Adler, Irving and Ruth. 1961 SHADOWS * Day. $2.29 Tells children all kinds of facts about light and shadow.	X	X		X	
Goudey, Alice E. 1961 THE DAY WE SAW THE SUN COME UP ** Scribner. $3.12 Presents facts about the earth and sun in the traditional picture book format, using rhythmic prose for the text. A good book for free reading.	X	X		X	X

* Good
** Excellent

IV. The Universe

B., Our star, the sun	Tchr. Ref.	Illus.	Learning Activities	Read to Children	Child Use
Branley, Franklyn M. 1961 THE SUN, OUR NEAREST STAR ** Crowell. $2.35 Three-color illustrations and clarity to this "Let's-read-and-find-out" explanation of what the sun is and of our dependence upon it.				X	X
Goudey, Alice E. 1961 THE DAY WE SAW THE SUN COME UP ** Scribner. $3.12 Presents facts about the earth and sun in the traditional picture book format, using rhythmic prose for the text. A good book for free reading.	X	X		X	X

* Good
** Excellent

Grade One

BASIC SCIENCE EDUCATION SERIES
Published by Row, Peterson & Co.

(Grade Placed for Major Topic in the Reorganized Science Curriculum)

II. Living Things

	Reading Level
A. Animals need food	
How Animals Get Food	3.0
D. Learning about plants	
Leaves	

JLP/db
10/18/67

BIBLIO. - FILMS

For discussion purposes only

A PARTIAL LISTING OF PRESENTLY OWNED

SCIENCE MOTION PICTURE FILMS

GRADE ONE

Correlated to the Unit Titles as found in the
Reorganized Science Curriculum

Minneapolis Public Schools
Science Department

2-12-65

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C. Our bodies.	10	Green
D. Learning about plants . .	12	Green
E. Kinds of seeds and how they travel	14	Green
III. Energy		
A. Electricity works for us.	14A	Yellow
IV. The Universe		
A. The earth where we live .	15	Blue
B. Our star, the sun	16	Blue

The annotations for films found on the following pages were obtained in most cases from the Library of Congress cards. Some annotations were secured from other sources, such as the Educational Film Guide and producers' catalogs.

Introduction to Science

Some ways of learning science

Name and Description of Film	Other Grade Placements	Remarks
1. **Autumn is an Adventure: Background for Reading and Expression** ** Coronet, 1952; 11 min., black & white How two children acquire an interest in reading and expression through the association of new words, songs, and poems with their autumn activities.		
2. **Spring is an Adventure** ** Coronet, 1955; 11 min. Through the eyes of Mary Ann, many of the wonders of spring are revealed. Flowers and trees develop from buds to full bloom. Changeable weather includes much mud and rain. Bees gather nectar, birds build nests, robin lays eggs, and people clean house, repair screens, work in gardens, and fly kites. Trip along stream shows spring activities of animals, tadpoles, turtles, and plants. Concludes with a fishing trip.	K - *	
3. **Ways to Find Out** ** Churchill-Wexler, 1958; 12 min. Vino, a boy of about eight years, discovers that there are many ways to learn about things. Walking home in the rain, he sees, hears, feels, tastes, and smells many things. At home he distinguishes between things, such as a ball and an apple, by using his senses. Vino shows that he can find out many things by using only one sense. He can sense a kitten by its sound, a rug by its feel, soap and pickles by their smell, and an orange by its taste.	K - ** Gr. 3 - **	

* Good
** Excellent

Introduction to Science - Continued

Name and Description of Film	Other Grade Placements	Remarks
4. What the Frost Does: Background for Reading and Expression ** Coronet, 1960; 10 min., color In guiding children to make observations of events in nature, the film shows seasonal changes and the effects of frost in an engaging story of a boy and his interest in a pumpkin that is growing in his father's field.	K - ** Gr. 3 - **	Show in fall
5. Prove it With a Magnifying Glass ** Film Assoc. of Calif.; 11 min., color This film is designed as an introduction to the scientific method. This film was made for the young child. It uses a child's first science experiences with a simple instrument (the magnifying glass) to illustrate the concept: prove it yourself. For primary science classes.	K - ** Gr. 2 - ** Gr. 3 - **	

* Good
** Excellent

I. The Earth

A. Air around us

Name and Description of Film	Other Grade Placements	Remarks
1. Introducing Air ** 11 min., 16 mm., sd, color or b/w Bailey Films, Inc. Father takes Johnny and Michele on a day's outing to the harbor, where they enjoy a ride on a sailboat. The children are impressed to see how air fills the sails and pushes the big boat along. Father explains that while we cannot see air, it is very real, it takes up space, it touches everything around us, and it makes us feel warm or cold. In the cabin below, he illustrates these points for the children by performing some simple experiments with a glass, water, and a balloon. As the boat returns, the children are asked to look for other ways to prove that air is real.	K - **	

* Good
** Excellent

II. Living Things

A. Animals need food

Name and Description of Film	Other Grade Placements	Remarks
1. Adventures of a Baby Fox ** EBF, 1956; 13 min., black & white The film shows many of the forest birds, flowers, insects and animals. It follows a baby fox as it ventures through the woods and near the streams seeking food and adventure. The story of his adventure is told in rhyme.	Gr. 4 - *	
2. Animals Breathe in Many Ways ** Film Assoc. of Calif., 1963; 11 min., color In order to live, animals must breathe. They take in oxygen and get rid of carbon dioxide. Many small animals breathe directly through their body coverings. Most large water-living animals breathe with gills. Adult insects breathe through tubes in the sides of their bodies. Most large land-living animals breathe with lungs.	Gr. 4 - **	
3. Animals in Summer ** EBF, 1955; 11 min. Shows more than a dozen common animals of the woods, varying from fish to insects and nest-eaters. The animals are seen seeking food and sheltering their young from enemies.	Gr. 4 - ** Gr. 5 - ** Gr. 7 - **	

* Good
** Excellent

II. Living Things - A. (continued)

Name and Description of Film	Other Grade Placements	Remarks
4. The Big Green Caterpillar ** Stanton Films, 1961; 11 min., color On an ordinary street there is a tree. On the tree there is a tiny insect egg. A boy finds the egg and raises the caterpillar that hatches out of the egg into an adult insect. The boy wonders how his pet grew so big in such a short time, eating only tree leaves. He wonders if chemicals in its body changed tree leaves into good food.	Gr. 2 - ** Gr. 5 - ** Gr. 7 - *	
5. Birds in Winter ** Coronet, 1946; 11 min., color Presents the seasonal aspect of bird life, the interdependence of living things, and the food-getting adaptations of birds in winter. Shows how to use a feeding station to attract such winter birds as the chickadee, nuthatch, woodpecker, junco, cardinal, English sparrow, starling, and robin, and how to recognize each.	Gr. 4 - ** Gr. 7 - *	
6. Fall Brings Changes ** Churchill-Wexler, 1962; 11 min., color This film shows the adaptation of plants and animals to colder weather. Useful in the area of Language Arts. It is beautiful and poetic and will inspire many stories to enrich the child's imagination and vocabulary.	K - ** Gr. 2 - ** Gr. 4 - **	Also listed II-D

* Good
** Excellent

II. Living Things - A. (continued)

Name and Description of Film	Other Grade Placements	Remarks
7. Live Teddy Bears: The Koala ** EBF, 1947; 11 min., black & white Portrays the life and habits of the koala, a strange animal of Australia. Shows the koala first in a park and then in its native habitat, the Australian bush country, and explains how the koala is adapted to its environment, especially in relation to food supply.	Gr. 4 - **	
8. Winter is an Adventure ** Coronet, 1954; 11 min. A small boy from the city pays a winter visit to his uncle's farm and discovers how the wild and domestic animals, plants, and birds prepare for and spend the winter.		Also listed II-D
9. Zoo ** EBF, 1949; 11 min., color A visit to the Chicago Zoological Park, showing some of the animals found there, their characteristic actions, their unique coloration, and their feeding habits.	K - ** Gr. 3 - **	

* Good
** Excellent

II. Living Things - A. (continued)

Name and Description of Film	Other Grade Placements	Remarks
10. Zoo Baby Animals ** [illegible] 1960; 11 min., color Through this film children have an opportunity to look "behind the scenes" at the zoo--to see activities in the kitchen and hospital; to see how baby animals are fed and cared for by their keepers. The film also shows many animals in attractive outdoor setings and in "children's zoo" sections in the famous Linclon Park and Brookfield Zoos of Chicago.	K - ** Gr. 3 - *	
11. Zoo Animals of Our Storybooks: Background for Reading and Expression ** Coronet, 1953; 10 min. Pictures a variety of animals in the zoo.	K - ** Gr. 3 - *	

* Good
** Excellent

SCIENCE MOTION PICTURE FILMS - Grade One
(Addendum)

Additions to
Page 8

II. Living Things

A. Animals need food

Name and Description of Film	Other Grade Placements	Remarks
Animals At Night EBF; 1964; 11 min., color Presents a visual study of various nocturnal animals. Highlights their physical characteristics, habits and adaptations to their nighttime environment.	Gr. 3 -	No eval. yet No eval. yet
Insects: How To Recognize Them ** Coronet; 1964; 11 min., color Presents ways to recognize insects. Shows that insects have three body parts, three pair of jointed legs and two antenna. Depicts that they undergo changes as they grow up. Reveals clues in recognizing different groups of insects such as beetles, flies, butterflies and moths.	Gr. 2 - **	

* Good
** Excellent
5-9-67

II. Living Things

B. Animals use their senses

Name and Description of Film	Other Grade Placements	Remarks
1. Aquarium Wonderland ** Pat Dowling, 1960; 10 min., color In microscopic and unusual close-up scenes and animation, one sees how fish breathe, hear, feel, smell and swim. A boy shows how to set up and maintain an aquarium, using the proper amount of water, plants and food for the goldfish and other animal life it contains.	Gr. 3 - ** Gr. 5 - ** Gr. 4 - **	

* Good
** Excellent

II. Living Things

C. Our bodies

Name and Description of Film	Other Grade Placements	Remarks
1. Care of the Hair and Nails ** EBF, 1951; 11 min., black & white A fairy tale character uses magic to help children learn good habits. She shows them how to clean and manicure fingernails, how to trim toenails, and how to shampoo and brush the hair. She lets them see some common diseases of the hair, and through animated drawings, shows the structure of hair and nails and explains why their care is important.	K - ** Gr. 5 - **	
2. Care of the Skin * EBF, 1949; 11 min., black & white Demonstrates good habits of skin hygiene and illustrates common skin ailments. Portrays three children as they prepare for bed to show how to wash the hands and face and how to bathe. Through animated drawings describes the structure of the skin and explains why soap is necessary for cleanliness.	K - ** Gr. 5 - **	
3. Sleep For Health ** EBF, 1950; 11 min., black & white Presents the importance of regular sleeping habits from the viewpoint of a child. Shows the child how a regular bedtime which allows for sufficient sleep helps him attain goals which he himself desires. Emphasizes the child's own responsibility in the formation of good habits. Explains dreaming as a normal part of sleeping. Illustrates how lack of sleep causes irritability and interferes with the enjoyment of everyday living.	K - ** Gr. 5 - **	

* Good
** Excellent

SCIENCE MOTION PICTURE FILMS - Grade One
(Addendum)

Additions to
Page 11

II. Living Things

C. Our bodies

Name and Description of Film	Other Grade Placements	Remarks
Your Body and Its Parts **		
EBF (Basic Life Science) 1964; 11 min., color	Gr. 3 - ** Gr. 5 - **	
This film is intended to provide an overview of the human physiology presented in the other six films of the series. It shows that when parts of the body work together to do a particular job, they form what is called a "system". Different systems are introduced; the muscle system, the respiratory system, the circulatory system, the skeleton and the nervous system. The film also shows how the systems of the body work together in performing many body functions.		

* Good
** Excellent
5-9-67

II. Living Things - C. (continued)

Name and Description of Film	Other Grade Placements	Remarks
4. Your Health: Disease and Its Control * Coronet, 1954; 11 min. Shows how harmful microbes are carried and spread; explains how they enter the body, overcome body defenses, and cause illness; stresses the importance of maintaining good health habits in order to prevent disease. Includes photo-micrography and animated sequences.	Gr. 5 - ** Gr. 7 - **	

* Good
** Excellent

II. Living Things

D. Learning about plants

Name and Description of Film	Other Grade Placements	Remarks
1. Fall Brings Changes ** Churchill-Wexler, 1962; 11 min., color This film shows the adaptation of plants and animals to colder weather. Useful in the area of Language Arts. It is beautiful and poetic and will inspire many stories to enrich the child's imagination and vocabulary.	K - ** Gr. 2 - ** Gr. 4 - **	Also listed II-A
2. Food From Our Gardens ** EBF, 1952; 10 min., color Shows the members of a family working in their garden. Describes the structure and growth of plants; examines the plants of several common vegetables, pointing out in each the location of the edible portion and its function in the growth of the plant.	Gr. 2 - ** Gr. 4 - ** Gr. 7 - **	
3. Learning About Flowers ** EBF, 1958; 10 min., color Portrays in vivid photography the story that there are many different kinds of flowering plants. Time-lapse photography is extensively used to show the opening of some of the more common flowers of our fields and gardens. The film is designed to help the student appreciate the beauty in flowers and to realize that the purpose of the flower is to produce seeds.	K - * Gr. 3 - ** Gr. 5 - **	

* Good
** Excellent

SCIENCE MOTION PICTURE FILMS - Grade One
(Addendum)

Additions to
Page 13

II. Living Things

D. Learning about plants

Name and Description of Film	Other Grade Placements	Remarks
Living Things are Everywhere ** EBF (Basic Life Science) 1964; 11 min., color There are many different kinds of living things. Some are animals and some are plants. Some are so small that they are difficult to see and some are large. Wherever you are, you can find living things if you look very closely. You can find them in water, in the air, on the ground, and underground. Living things move about in different ways. Some can run or crawl on the ground; some can climb trees; some can swim; and some can fly. All plants and animals must live in places where they can get the kind of food they need.	Gr. K - ** Gr. 2 - **	

* Good
** Excellent
5-9-67

II. Living Things - D. (continued)

Name and Description of Film	Other Grade Placements	Remarks
4. Seasonal Changes in Trees ** Coronet, 1949; 11 min., color Children study the common trees near their school and note the seasonal changes which occur in the different varieties.	Gr. 3 - ** Gr. 4 - ** Gr. 7 - **	
5. The Tree ** Churchill, 1963; 10 min., color Describes the beauty of trees and their importance to birds, insects, other plants, animals, and people. Introduces the concept that living things depend on each other.	Gr. 3 - ** Gr. 4 - **	
6. The Tree on the Road to Turntown ** McGraw-Hill, 1962; 7 min., color This film tells the story of an acorn, stepped on by a boy, Skip Snider, and pressed into the soft earth. Next spring, the acorn sprouts and gradually grows into a fine, sturdy oak. Fifteen years later, a pair of Baltimore Orioles build their nest and raise a family which gorges itself on the caterpillars attacking the tree. When the oak is sixty-five years old, it is cut down for lumber, some of which goes into the house that Skip Snider, now a grown man, is building.		Also listed II-A
7. Winter is an Adventure ** Coronet, 1954; 11 min. A small boy from the city pays a winter visit to his uncle's farm and discovers how the wild and domestic animals, plants and birds prepare for and spend the winter.		Also listed II-A

II. Living Things

E. Kinds of seeds, and how they travel

Name and Description of Film	Other Grade Placements	Remarks
1. Learning About Seeds ** EBF, 1961; 11 min., color Explains that there are many different kinds of seed bearing plants and that seeds have many sizes, shapes, and colors. Through time-lapse photography we see how seeds grow and what they need for growth. Several methods of seed dispersal are also clearly illustrated.	K - ** Gr. 3 - ** Gr. 5 - **	
2. How Seeds are Scattered McGraw-Hill, ; 10 min., color Discusses and illustrates the many different ways in which seeds are dispersed, by wind, water and animals.	Gr. 3 - ** Gr. 5 - **	No eval. yet

* Good
** Excellent

SCIENCE MOTION PICTURE FILMS - Grade One
(Addendum)

III. Energy

A. Electricity works for us

Name and Description of Film	Other Grade Placements	Remarks
Safety With Electricity ** EBF (Basic Physical Science) 1963; 10 min., color An electric storm, a fallen high voltage wire, a lightning-felled tree dramatize the force of electricity. A boy plays with an electric train, turns a wall switch on and off, and plugs in appliances to illustrate the uses of electricity. Simple experiments demonstrate how electricity is conducted. Through animation a short circuit is illustrated; a fuse blows, tinsel melts when laid across bare wire, an overloaded circuit is shown. Electricity is seen as a friend. Children are cautioned not to make it a dangerous enemy.	Gr. 5 - **	

* Good
** Excellent
5-9-67

IV. The Universe

A. The earth where we live

Name and Description of Film	Other Grade Placements	Remarks
1. Big World *	K - **	
Educational Horizons, 1960; 11 min., color	Gr. 3 - **	First semester
	Gr. 5 - *	Easy film
Shows how we cannot always know the shape of an object by viewing only a small part of it. Answers the simple, direct questions of a child about the size, and shape of our world. A primary globe is used by the child's father to discuss briefly the basic forms of land and water.		

* Good
** Excellent

IV. The Universe

B. Our star, the sun

Name and Description of Film	Other Grade Placements	Remarks
Big Sun and Our Earth ** Coronet, 1957; 10 min., color Presents some of the fundamental concepts regarding the sun. Introduces rotation of the earth and it's relationship to the sun, day and night as resulting from the earth's rotation, the distance of the earth from the sun, and the affects of the sun's heat and light upon the earth. Follows the apparent movement of the sun across the sky. Observes: length of shadows, movement of a flower in the direction of the sun, opening and closing of flower petals, intensities of sunlight.	Gr. 2 - **	

* Good
** Excellent
5-9-67

For discussion purposes only

SCIENCE FILMSTRIPS

(35 mm.)

for
Grade One

Correlated to the Unit Titles as found in the
Reorganized Science Curriculum

Minneapolis Public Schools
Science Department

For discussion purposes only Grade One

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D. Learning about plants.....	5	Green
IV. The Universe		
B. Our star, the sun.........	7	Blue

The annotations for filmstrips found on the following pages were obtained from sources such as the Wilson's Filmstrip Guide, producers' catalogs, and the Library of Congress cards.

Introduction to Science

Some ways of learning science

Name and Description of Filmstrip	Other Grade Placements	Remarks
1. WWhat Is an Experiment? ** Jam Handy Organization, 1955; 24 fr., color (First Experiments About Weather Series, 6 f.s.), $4.75 each Art work illustrations. Billy discovers that an experiment is a test. He experiments to find the answers to his questions: Why does it get dark? Why does it rain? Why do airplanes fly?	Gr. 3 --** Gr. 5 - **	For slow groups or review

* Good
** Excellent

I. The Earth

A. Air around us

Name and Description of Filmstrip	Other Grade Placements	Remarks
1. Air Helps Things to Float in Water * Jam Handy Organization, 1960, 21 fr., color (First Experiments With Air Series, 5 f.s.) $5.75 each Uses simple experiments to introduce primary-grade children to the scientific method of problem solving. Presents experiments to explain that air helps things to float in water. Captioned drawings.		
2. Air Is Everywhere ** Jam Handy Organization, 1960; 22fr., color (First Experiments With Air Series, 5 f.s.) $5.75 each Uses simple experiments to introduce primary-grade children to the scientific method of problem solving. Presents experiments to explain that air is everywhere. Captioned drawings.	K. - *	
3. Air Is Real ** Jam Handy Organization, 1960; 24 fr., color (First Experiments With Air Series, 5 f.s.) $5.75 each Uses simple experiments to introduce primary-grade children to the scientific method of problem solving. Presents experiments to explain that air is real. Captioned drawings.		

* Good
** Excellent

mi

The Earth - A. (continued)

Name and Description of Filmstrip	Other Grade Placements	Remarks
4. Air Pushes Against Things * Jam Handy Organization, 1960; 23 fr., color (First Experiments with Air Series, 5 f.s.) $5.75 each Uses simple experiments to introduce primary-grade children to the scientific method of problem solving. Presents experiments to explain that air pushes against things. Captioned drawings.		
5. Living Things Need Air ** Jam Handy Organization, 1960; 25 fr., color (First Experiments With Air Series, 5 f.s.) $5.75 each Uses simple experiments to introduce primary-grade children to the scientific method of problem solving. Presents experiments to explain that living things need air. Captioned drawings.	K. - * Gr. 3 - **	
6. What Is Wind? ** Art work illustrations. Through simple experiments with a pinwheel, a balloon and a plastic bag, Tommy discovers that wind is moving air and that air is real. Jam Handy Organization, 1955; 31 fr., color (First Experiments About Weather Series, 6 f.s.) $4.75 each	K. - * Gr. 3 - ** Gr. 5 - **	For slow groups or review

* Good
** Excellent

II. Living Things

D. Learning about plants

Name and Description of Filmstrip	Other Grade Placements	Remarks
1. New Plants from Older Plants ** Jam Handy Organization, 1964, 29 fr., color (Plants Around Us, 6 f.s.), $5.75 each, $31.50 set Plants can be grown in other ways than by seed germination. Example is given of making plant cuttings to show how new plants can grow by properly cutting and planting the cuttings of older plants.	Gr. 2 - **	
2. New Plants from Seeds ** Jam Handy Organization, 1964; 30 fr., color (Plants Around Us, 6 f.s.) $5.75 each, $31.50 set Shows that plants can be grown from seeds and that most plants do grow from seeds.		

* Good
** Excellent

IV. The Universe

B. Our star, the sun

Name and Description of Filmstrip	Other Grade Placements	Remarks
1. Solar Storehouse; Food from the Sun ** Moody Institute of Science, 35 fr., color (Nature's Storehouse Series, 2 f.s.) $ The energy in food, including animal food products, is traced through the photosynthetic process to the sun. Other solar contributions to the production of food are also noted.		
2. Why Is the Night Cooler Than the Day? ** Jam Handy Organization, 1955; 20 fr., color, (First Experiments About Weather Series, 6 f.s.) $4.75 each Art work illustrations. Joe wonders why it is warmer in the day than it is in the evening. He uses a thermometer in experiments with the sunshine to learn the answer to his questions.	K. - * Gr. 3 - ** Gr. 5 - *	For slow groups or review

* Good
** Excellent

JP:gm
1-8-64

EQUIP. & SUPPLIES

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS February 1966

Item No.		Unit	Unit Price
32-0140	ALCOHOL, Denatured	quart	.34
17-0100	ALUMINUM FOIL, 15" x 50', to waterproof table tops	roll	.62
17-0110	ALUMINUM FOIL, 18" x 50', for use under an aquarium or terrarium	roll	1.03
28-0100	ANIMAL PEN, 18" x 24" x 18" high	each	6.61
28-0105	ANIMAL PEN, cage, 9" x 9" circular	each	4.55
28-0110	ANT HOME, Turtox 220A167	each	7.50
	AQUARIUMS, TERRARIUMS AND SUPPLIES:		
28-0030	ACID NEUTRALIZER	ounce	.45
28-0040	AERATOR, Saxon	each	6.00
28-0200	AQUARIUM, 3 gallon, seamless	each	6.34
28-0300	AQUARIUM, 6 gallon	each	9.07
28-0340	AQUARIUM CEMENT	lb.	.60
	AQUARIUM COVER (include pattern w/requisition)		
28-0390	9-7/8" x 5-3/4", clear plexiglass	each	.42
28-0400	9-7/8" x 5-3/4", glass, double strength	each	1.00
28-0490	9-1/2" x 17-1/2", clear plexiglass	each	1.[illegible]7
28-0500	9-1/2" x 17-1/2", glass, double strength	each	1.23
28-0600	AQUARIUM AND TERRARIUM SEALER	tube	.30
28-2100	CHARCOAL, Chunk	5# bag	.43
28-3000	DIP NET, 3" wide, 3-1/2" deep	each	.35
28-3020	DIP TUBE, plastic, 16", no scraper attachment	each	.90
28-3025	AQUARIUM METAL SCRAPER, long handle	each	.60
28-3290	FEEDING RING, 2"	each	.20
47-3260	GLASS SCRAPER, all metal	each	.18
47-0340	BLADES for above scraper	each	.02
28-4160	GRANITE CHIPS	lb.	.034
28-4180	GRAVEL	lb.	.05
28-7460	SAND	lb.	.15
28-8100	SOIL, sterile	bushel	1.50
28-9320	TEMPERATURE CONTROL OUTFIT: Thermostat #340 to include one of the following:	each	5.85
28-4310	PENCIL HEATER, 25 w, for aquarium, 1 to 3 gallon	each	2.00
28-4320	PENCIL HEATER, 50 w, for aquarium, 4 to 6 gallon	each	2.00
28-4330	PENCIL HEATER, 75 w, for aquarium, 7 to 15 gallon	each	2.75
28-0700	ASPIRATOR, Chapman pump, Cenco 13205-3, w/adapters to connect to sink	each	3.25
28-0705	HOSE FOR ASPIRATOR, black (indicate footage needed)	ft.	.27
28-0800	BALANCE, demonstration, clamp and support only (must order meter stick #28-5380 to complete set)	each	2.60

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS

Item No.		Unit	Unit Price
28-0820	BALANCE, TRIPLE BEAM, stainless steel, capacity 610 gms Note: by use of auxiliary weights this balance can be used to a maximum of 2610 gms	each	15.35
28-0825	AUXILIARY WEIGHT SET, for use with Triple Beam Balance. Increases capacity from 610 gms to 2610 gms. Set consists of 2 1,000 gm weights and 1 500 gm weight.	set	4.50
28-0830	WEIGHT, 500 gm, for use with Triple Beam Balance (to replace any lost in Auxiliary Weight Set)	each	1.50
28-0835	WEIGHT, 1,000 gm, for use with Triple Beam Balance (to replace any lost in Auxiliary Weight Set)	each	1.50
28-0840	BALL AND RING	each	4.11
15-1200	BALLOONS, rubber	doz.	.46
28-0900	BAROMETER, ANEROID, 6" diameter, round wooden case	each	3.33
28-2150	BATTERY CELL HOLDER for "D" dry cell, mounted on board with Fahnestock clips for easy connection	each	.50
	BEAKER, Griffin, low form, Pyrex		
28-0940	100 ml	each	.40
28-0960	150 ml	each	.39
28-0980	250 ml	each	.39
28-1000	400 ml	each	.46
28-1020	BEAKER, Griffin, low form, stainless steel, 600 ml	each	2.97
28-1030	BELL, DOOR, electric, D.C., 2-1/2" diameter	each	1.64
28-1060	BELL OUTFIT, electric, dry cell, push button, 1 lb annunciator wire and staples	each	4.12
28-1500	BOTTLES, 4 oz. wide mouth (gas collecting bottle)	doz.	.66
28-1520	BOTTLES, 8 oz. wide mouth (gas collecting bottle)	doz.	.89
28-1540	BOTTLES, 4 oz. (baby food jar type with bakelite screw cap)	doz.	1.61
28-1570	BROM THYMOL BLUE, Crystaline, Free acid form, Harleco #862 (to detect the presence of carbon dioxide -- for the study of the constituents of air and the respiratory activities of plants and animals)	1-gram bottle	1.50
28-1600	BRUSH, Test tube, 3/4" x 3-1/2"	each	.13
28-1620	BURNER, Alcohol lamp, glass, 4 oz.	each	.74
28-1640	BURNER, Turner, liquid petroleum, tank + LP, Bunsen-type	each	7.95
70-4550	REPLACEMENT TANK	each	.98
28-1700	BUZZER, electric	each	1.73

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS

Item No.		Unit	Unit Price
28-2010	CALCIUM HYDROXIDE SOLUTION, limewater (Also see Lime Water Tablets #28-4810)	1# bottle	.60
28-2030	CANDLES, Paraffin	doz.	.48
28-2040	CASTER CUPS, glass	each	.10
28-2050	CAT'S SKIN, half	each	3.64
28-2060	CELL, student's demonstration	each	3.15
28-2110	CHIMNEY, lamp	each	1.00
28-2120	CLAMP, Burette	each	1.20
28-2140	CLAMP, pendulum	each	2.30
28-2160	CLIP, Fahnestock, to be used to mount electrical apparatus (10 in package)	pkg.	.17
28-2200	COMPASS, magnetic, 16 mm diameter	each	.25
28-2240	COMPASS, magnetic, about 45 mm diameter	each	.70
28-2300	COMPOUND BAR, bi-metal	each	.78
28-2400	CONDUCTOMETER, four 5" wires on handle, overall length 13 inches	each	2.05
28-2500	CORKS, assorted, xx quality, sizes 0-11 (100 in bag)	bag	1.35
28-2540	CORK BORER, set of 6, 1/2" largest borer	set	6.2[illegible]
28-2560	COTTON, absorbent, not sterilized	lb.	.90
28-2600	CULTURE DISHES, Petri, Pyrex, 100 mm x 15 mm	pair	.60
17-3380	CUPS, measuring, Set of 4 (1 C, 1/2 C, 1/3 C, 1/4 C)	set	.36
28-2700	CYLINDER, graduated, Tuttle, short form, 100 ml capacity	each	2.70
28-2720	CYLINDER, hydrometer jar, 275 ml capacity, 13-38" high	each	2.40
28-3015	DISHES, evaporating, Coors 430, 75 mm diameter, 30 mm high, 70 ml capacity	each	.47
28-3040	DISSECTING NEEDLE, wooden handle, bent needle	each	.10
28-3050	DISSECTING NEEDLE, wooden handle, straight needle	each	.07
28-3100	DROPPER, medicine, (12 to pkg)	pkg.	.46
28-3140	DROPPING BOTTLE, 30 ml	each	.35
59-0130	DRY CELL, 1½ volt, #6, diameter 2-1/2", height 6"	each	.64

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS

Item No.		Unit	Unit Price
28-3200	ELECTRIC PLATE, 3 heat, 1000 watt, 110 volt	each	6.14
28-3240	ELECTROMAGNET, horseshoe type	each	11.40
28-3260	ELECTROSCOPE, flask form, 250 ml, Pyrex Erlenmeyer flask	each	2.85
28-3280	ETHYL ACETATE, for killing insects	lb.	1.26
28-3300	FEHLING'S SOLUTION, A	16 oz bottle	1.20
28-3320	FEHLING'S SOLUTION, B	16 oz bottle	1.55
28-3400	FILE, Triangular, 4"	each	.38
28-3500	FILTER PAPER, qualitative, 100 circles per package, 11 cm diameter	pkg.	.44
28-3600	FLASK, Erlenmeyer, narrow mouth, Pyrex, 250 ml	each	.48
28-3620	FLASK, Erlenmeyer, narrow mouth, Pyrex, 500 ml	each	.61
28-3800	FUNNEL, plastic, 73 mm, or 2-7/8" top diameter	each	1.14
28-4000	FUNNEL, Pyrex, 65 mm or 2-1/2" top diameter	each	.75
28-4100	FUNNEL, thistle top, 30 cm or 12" length, 35 mm or 1-1/4" diameter	each	.36
	GLOVES, rubber:		
28-4120	size 8	pair	.80
28-4130	size 9	pair	.80
28-4140	size 10	pair	.80
28-4200	GYROSCOPE, simple form, 5.5 cm diameter, support and starting cord	each	1.25
28-4360	HYDROCHLORIC ACID (HCL)	lb.	1.03
28-4400	HYGROMETER, Humidiguide, direct reading	each	9.00
28-4500	IRON FILINGS	1# carton	.38
28-4600	JAR, battery, cylindrical, 1 gallon	each	1.42
28-4800	LAMP, incandescent, miniature, 2-1/2 volt maximum, screw base	each	.25
28-4805	LENSES, demonstration set, 3.75 cm diameter, 6 in set	each	5.25
28-4810	LIME WATER TABLETS (See Calcium Hydroxide Solution, #28-2010)	each	.0075
28-4820	LITMUS PAPER, blue, 100 strips in vial	vial	.09
28-4840	LITMUS PAPER, neutral, 100 strips in vial	vial	.09
28-4860	LITMUS PAPER, red, 100 strips in vial	vial	.09

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS

Item No.		Unit	Unit Price
28-4940	MAGNETS, bar, steel, 2 in box with keepers	set	1.80
28-5100	MAGNETS, ceramic cylinders, 3/8" x 1/8", #1054	each	.03
28-5000	MAGNETS, ceramic cylinders, .52" x .25", #866	each	.03
28-5140	MAGNETS, "floating"	each	3.25
28-5200	MAGNETS, horseshoe, 2.8 cm	each	.60
28-5240	MAGNETS, horseshoe, 4 cm	each	2.20
28-5250	MAGNETS, natural, lodestone	each	.22
28-5260	MAGNETIC NEEDLE, on stand	each	2.45
28-7100	MAGNIFIER, round, 3" diameter reading glass with handle, 2x to 3x	each	1.25
28-5300	MAGNIFIER, small, premium plastic, 3-5/8" long, fitted with two spherical convex lens (3x and 7x) and two cylindrical magnifiers	each	.31
28-5280	MAGNIFIER, tripod, 10x	each	1.10
28-5320	MAT, asbestos, 10" x 16"	each	.65
28-5340	MAT, wire gauze, asbestos center, 4 inch	each	.21
28-5380	METER STICK, maple, metric and English scales	each	.85
28-5400	MICROSCOPE, ELECTRIC, including: 50X and 100X objectives, 12 prepared slides, micromount cards, one 32 page booklet, "The Microscope in Elementary Science", and wood case	each	18.18
18-4600	ELECTRIC LIGHT BULB, 6 watt, 115 volt, candelabra bayonet base (replacement bulb for item #28-5400)	each	.18
28-5410	MICROSCOPE, model ESM, 100X Bausch and Lomb (No Sub) Cat. 31-33-03 (Price includes illuminator, item #28-5425)	each	15.00
28-5420	MICROSCOPE, ZOOMSCOPE, Model STZ 100 Bausch and Lomb (No Sub) Cat. 31-21-03 Magnification 25x through 100 x Zoom. (Price includes illuminator, item #28-5425)	each	53.00
28-5425	ILLUMINATOR, portable, Bausch and Lomb (No Sub) Cat. 31-33-03 Rite-Lite	each	3.00
28-5426	LAMP, replacement for microscope illuminator (Rite-Lite) Item #28-5425, 9-3/4 watt, candelabra, screw base, Bausch and Lomb, (No Sub) Cat. 31-31-40	each	.15
28-5500	MICROSCOPE SLIDES, culture	each	.12
28-5600	MICROSCOPE SLIDES, plain, 72 per box	box	1.10
28-5700	MIRROR, concave and convex, 75 cm diameter, 20 cm focus	each	1.00
28-5740	MIRROR, plane, square, 10 cm x 10 cm	each	.20
28-5800	MORTAR AND PESTLE, porcelain, Coors 522, 100 mm diameter, 60 mm high, 115 mm pestle length	set	1.66
28-5840	MOTOR, St. Louis, with 2 bar magnets; electromagnet attachment, $6.15	each	13.50

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS

Item No.		Unit	Unit Price
28-5860	NEEDLES, DARNING, 10 in pkg.	pkg.	.25
28-5880	NEEDLES, KNITTING, 12 in pkg.	pkg.	.55
28-5900	PAN, Dissecting, 12" x 7-1/2" x 5/8" deep	each	1.20
28-5910	PAN, METAL, vitreous enamel, 16-3/8" x 10" x 2-1/8"	each	2.50
28-5920	PAN, METAL, vitreous enamel, 20-1/2" x 12-3/4" x 2-3/8"	each	3.64
28-5930	PAPER, BLUEPRINT, 5 x 7, 24 sheets	pkg.	.49
28-5940	PAPER, BLUEPRINT, 8 x 10, 24 sheets	pkg.	1.29
28-5960	PINS, SILK, #2, for mounting insects (100 per pkg.)	pkg.	.43
28-5980	PITH BALLS, 12	pkg.	.80
28-6100	PLANT FOOD, "Plantabbs", 100 in pkg.	pkg.	.20
28-6000	PLANETARIUM, Universal, shows day and night, seasons, length of day, phases of moon, earth-sun-moon phases, includes manual	each	24.00
28-6200	PLATES, glass, flat, 12 to pkg. 2" x 2" x 1/16" thick	pkg.	.30
28-6220	POTS, FLOWER, unglazed earthenware, 4" diameter	each	.10
28-6240	PRISM, equilateral, flint glass, 75 mm long	each	2.00
28-6300	PULLEY, double, Bakelite	each	1.15
28-6340	PULLEY, single, Bakelite	each	.80
28-6400	PULLEY, double tandem, Bakelite	each	1.55
28-6440	PULLEY, triple tandem, Bakelite	each	2.05
28-6500	PUMP, model, plastic, force	each	5.65
28-6540	PUMP, model plastic, lift	each	4.95
28-7000	RADIOMETER	each	.80
28-7140	RECEPTACLE, screw base, for incandescent lamp, miniature, item #28-4800 (unmounted)	each	.25
28-7145	RECEPTACLE, screw base, for incandescent lamp, miniature, (mounted on board with Fahnestock clips for easy connection) -- 2 lamps included	each	.94
28-7020	RAIN GAUGE, wedge shape	each	3.95
28-7300	ROD, FRICTION, glass, 300 mm x 13 mm	each	1.10
28-7340	ROD, FRICTION, hard rubber, 250 mm x 13 mm	each	.70
28-7360	ROD, soft iron (used as electromagnet core)	each	.25
28-7400	RUBBER STOPPERS, assorted sizes, 00-8 (solid, one-hole and two-hole)	2 lb.	2.40

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS

Item No.		Unit	Unit Price
17-5800	SALT SHAKER, glass, for iron filings	each	.08
28-7480	SCALE, balance, spring dial type, 250 gms or 9 oz. capacity, Cenco 5410 - or equal, (to determine the weight of objects weighing less than one-half pound and small forces)	each	2.25
28-7490	SCALE, balance, spring, dial type, 500 gms or 18 oz. capacity, Cenco 5510 - or equal, (to determine the weight of objects weighing one pound or less and to measure small forces)	each	2.25
28-7500	SCALE, balance, spring, dial type, 2,000 gms or 72 oz. capacity	each	2.25
28-8000	SCIENCE KIT AND MANUAL, contains almost all necessary initial equipment for elementary science	each	42.00
28-8040	SILK PAD, exciting	each	.55
28-8200	SPOON, DEFLAGRATING, iron, 3/4" diameter cup, total length 15"	each	.26
28-8300	SUPPORT, iron, rectangular base, 4-7/8" x 8", w/rod	each	1.90
	SUPPORT, ring with clamp		
28-8400	2-1/2" inside diameter	each	.95
28-8500	3-3/8" inside diameter	each	1.05
28-8520	SWITCH, KNIFE (unmounted) single pole, single throw	each	.40
28-8525	SWITCH, KNIFE (mounted on board with Fahnestock clips for easy connection) single pole, single throw	each	1.13
59-0570	SWITCH, PUSH BUTTON (unmounted)	each	.50
28-8530	SWITCH, PUSH BUTTON (mounted on board with Fahnestock clips for easy connection)	each	1.08
28-8600	TELEPHONE RECEIVER	each	5.00
28-8640	TELEPHONE TRANSMITTER	each	4.00
28-8700	TEST TUBES, Pyrex, 6" x 5/8"	each	.0508
28-8740	TEST TUBE CLAMP (Holder)	each	.11
28-8800	TEST TUBE RACK, wood, 6 holes and 6 pins	each	.70
28-9000	THERMOMETER, Celsius, (Centigrade) laboratory type, (-10°C to 110°C)	each	1.80
28-9005	THERMOMETER, Celsius, (Centigrade) student type, (-30°C to 50°C) inexpensive thermometer mounted on plastic backing	each	.15
28-9040	THERMOMETER, Fahrenheit, laboratory type, (0°F to 230°F)	each	1.40
28-9050	THERMOMETER, Fahrenheit, student type	each	.15
28-9100	THERMOMETER, metal, protected bulb, white enamel, scale in black	each	1,08
28-9200	THERMOMETER, outdoor, metal, protected bulb, mounting brackets, swivel type	each	1.53
28-9300	THERMOMETER, wooden back, natural finish	each	1.20

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS

Item No.		Unit	Unit Price
16-3420	THREAD, black No. 50	spool	.09
16-3520	THREAD, white No. 50	spool	.09
28-9340	TONGS, beaker, Fisher improved	pair	6.50
28-9360	TONGS, crucible, Parkerized steel	pair	.38
	TOOLS:		
32-4740	HAMMER, claw, 10 oz. head	each	2.24
28-4300	HAMMER, geologist, 22 oz. head	each	5.50
32-6300	PLIERS, combination, adjustable, 6"	each	.50
32-7460	SAW, HACK, adjustable	each	1.18
32-0930	BLADE, HACKSAW, 12", 14 teeth	each	.10
32-7550	SCREWDRIVER, 4" blade, Stanley #20	each	.71
32-8750	SHEARS, tinners snips, 3" cutting length, Wiss #9	pair	2.29
28-9400	TUBING, GLASS, lead-potash, 6 mm outside diameter	lb.	.55
28-9420	TUBING, RUBBER, 3/16", black	ft.	.27
28-9440	TUBING, RUBBER, 3/16", red	ft.	.27
	TUNING FORK, unmounted		
28-9500	128 vps	each	5.50
28-9520	256 vps	each	5.50
28-9540	320 vps	each	5.15
28-9560	384 vps	each	5.15
28-9580	512 vps	each	5.00
15-9200	TWEEZER, length - 4-5/8"	each	.31
12-8600	VERMICULITE	5# bag	.20
28-9600	VOLT-AMMETER, pocket type, DC, range 0-10 volts, 0-35 amperes	each	3.60
28-9640	WATCH GLASS, Pyrex, 75 mm diameter	each	.15
28-9700	WEATHER VANE, with base, metal, directions plainly marked	each	.83
28-9720	WEIGHTS, BALANCE, AVOIRDUPOIS, iron, class T, 1/2 oz. to 1 lb. (set of 8)	set	5.00
28-9740	WEIGHTS, METRIC, HOOKED, 10 gm - 1 kgm	set	14.25
28-9750	WEIGHTS, BALANCE, METRIC, in wood block, 1 gm - 500 gm	set	8.25
28-9770	WIRE, copper, annunciator, #22, vinylite covered	1# coil	2.34
28-9780	WIRE, iron, 17 gauge	4 oz spool	.34
28-9800	WOOD SPLINTS, 500	pkg.	.63

BASIC SCIENCE SUPPLIES FOR ELEMENTARY SCHOOLS

Item No.		Unit	Unit Price
	BIRD CARDS, Audubon, postal card size, 50:		
28-1100	Summer	box	1.20
28-1200	Winter	box	1.60
28-1300	Spring	box	1.60
28-1400	BIRD CHARTS, Audubon, 20" x 30", set of 4: Winter, Summer, Game Birds, and Birds of Prey	set	3.55
28-7200	ROCK CYCLE CHART	each	10.95
	ROCK COLLECTION:		
28-7210	KINDERGARTEN, 5 specimens to illustrate the Kindergarten concepts, each 3" x 3" x 2" (unmounted)	set	1.40
28-7220	GRADE ONE, 9 specimens to illustrate the First Grade concepts, each 3" x 3" x 2" (unmounted)	set	1.40
28-7230	GRADE FOUR, 9 specimens to illustrate the Fourth Grade concepts, each 3" x 3" x 2" (unmounted)	set	1.40

(Schools may purchase emergency supplies directly, paying for same out of the school building's funds. Principals are requested to accumulate receipts of at least five dollars ($5.00) and then make a general requisition (form G1000) to cover the items purchased. Attach all receipts and send the requisition to the Finance Department for reimbursement from the individual school's supply allotment.)